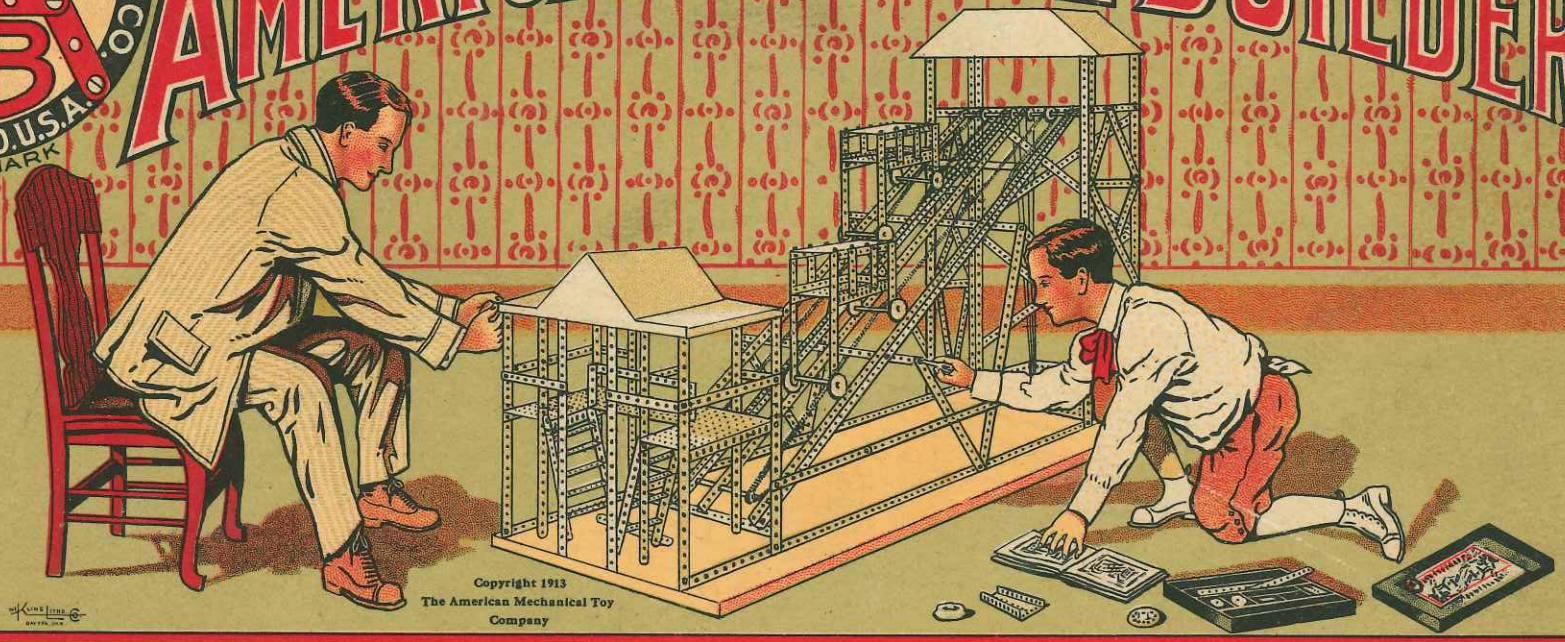
THE AMERICAN MECHANICAL TOY CO.
MB
DAYTON, O. U.S.A.
TRADE MARK

The AMERICAN MODEL BUILDER



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The American Mechanical Toy
Company

COMPLETE MANUAL OF INSTRUCTIONS

Full details of construction given for all Models that
can be built with the Thirteen Progressive Outfits
of The American Model Builder

PATENTED IN CANADA
JULY 29, 1913

U. S. PATENT APPLIED FOR

Manufactured by **The American Mechanical Toy Co., Dayton, Ohio, U. S. A.**

MADE IN U. S. A.

THE

AMERICAN MODEL BUILDER

THE TOY FOR THE BOY

MAKES MECHANICS EASY

WORKING MODELS OF THE WORLD'S MECHANICAL WONDERS CAN BE BUILT BY ANY BOY—THE MOST FASCINATING AND INSTRUCTIVE OUTFIT EVER INVENTED

MANUFACTURED BY

THE AMERICAN MECHANICAL TOY CO.

DAYTON, OHIO, U. S. A.

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American Mechanical Toy Co.

The American Model Builder

To Strengthen the Mind is to Exercise not Rest—Pope

PRIZES FOR THE BEST ORIGINAL MODELS

THE AMERICAN MODEL BUILDER is designed to teach the boy the first steps in practical mechanics. The most up-to-date and modern machinery has been installed in our factory to make The American Model Builder the most complete and practical steel construction outfit on the market. Every part in this outfit is a miniature machine part made of steel and brass, heavily nickel-plated and polished. This makes the outfit practically indestructible.

Each Pulley, Flanged and Grooved Wheel, Gear, Pinion, Bush Wheel, Eccentric Drive Wheel, and Sprocket is equipped with a Brass Collar and case-hardened Set Screw cupped at the end, which provides a positive fastening when used in any of the working models. All Gears are accurately cut to pitch and all Strips are made with rounded edges, so as to avoid the possibility of cutting the fingers when building the models. All Cranks and 4½" and 5½" Axle Rods are drilled for threading the string when used for hoisting purposes.

First familiarize yourself with the various parts and their names, as described on pages 78 and 79; then start to erect all the Models, beginning with Figure "A," and take them in regular rotation until the capacity of your set is exhausted. Many mechanical principles are demonstrated in the smaller Models that will make the building of the more complicated ones much easier.

On pages 72 to 76 we give a short treatise on Mechanical Construction, and clearly demonstrate the principles of Bracing, Girder and Truss Construction, Belting, Gear Relations, Centrifugal Governor and Universal Joint Construction. Read this over very carefully, as the description appended to the illustrations will enable you quickly to understand the mechanical reasons for the different constructions.

The American Model Builder is made in eight regular progressive sets, numbered from 0 to 7, as shown on page 80. The outfits numbered from 0½ to 6½ are Accessory Sets and should only be purchased to enlarge the regular sets. If you possess a No. 2 Outfit, the purchase of a No. 2½ Accessory Set will supply sufficient parts to convert your No. 2 into a regular No. 3 set. The No. 3½ Accessory Outfit contains enough parts to convert a No. 3 into a regular No. 4 set, and so on. We recommend the purchase of Accessory Outfits as the boy's knowledge increases. They are furnished in neat cardboard boxes, in which all the parts may be kept when not in use. However, individual parts may also be purchased separately at the prices shown on page 79.

We have designed special Motors, Transformers and a Countershaft for boys desiring to operate their Models by Electricity. These are by far the most efficient small devices ever offered the public, and a full description will be found on pages 70 and 71.

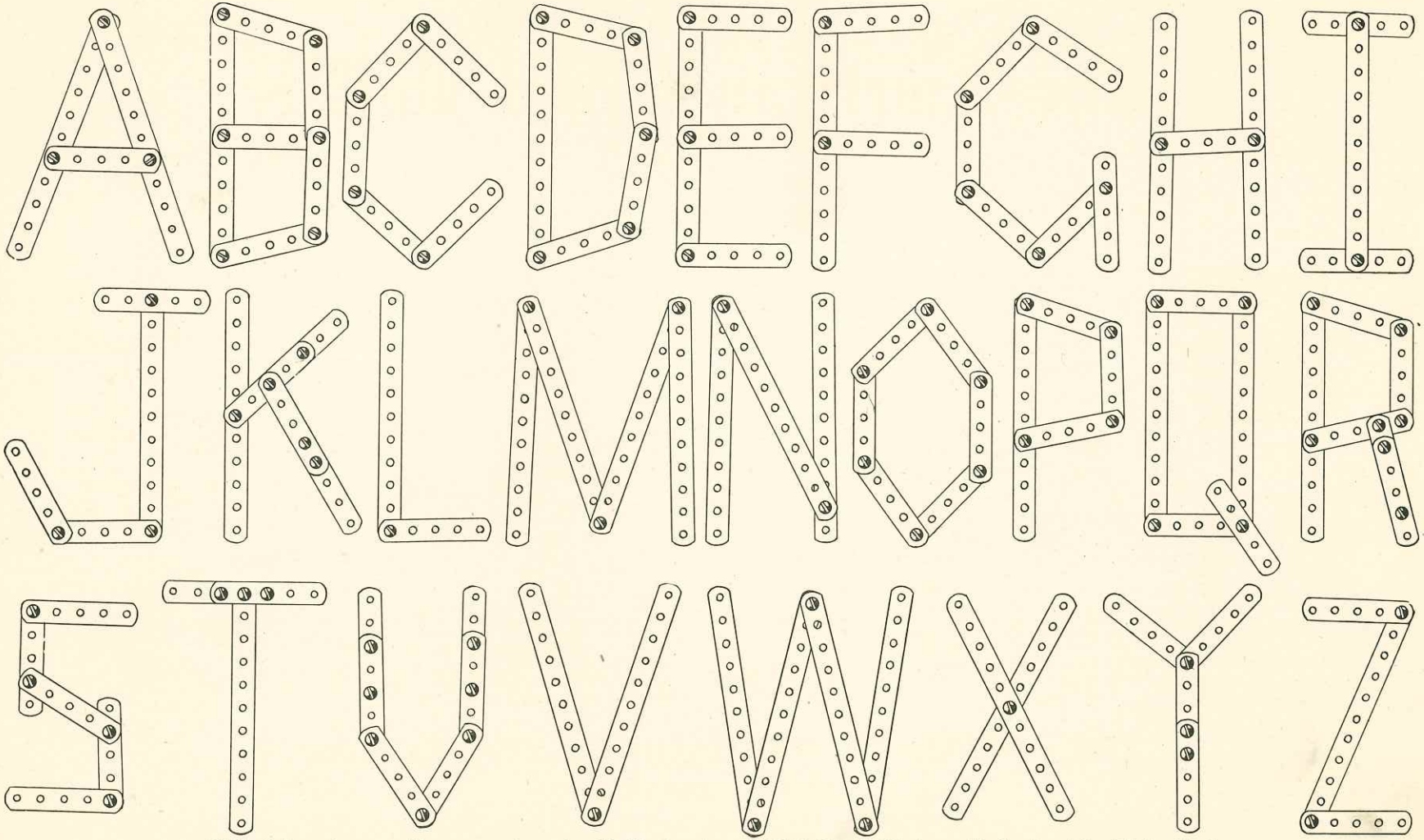
We maintain an Experimental Department at our factory where new designs and Models are constantly made. We want the name and address of every owner of an American Model Builder, as well as the number of your Outfit, so that we can keep you advised from time to time of any new Models that can be built with your Outfit. Please fill in the blank post card which is enclosed in your Outfit and mail to us for this purpose.

The charm and instruction in these outfits is found in the building of original Models. To encourage inventive genius, we offer $250 worth of sets as prizes for the best original Models submitted to us by April 1, 1915. In order to compete for these prizes, it is necessary to send us a photograph or sketch of any new Model built, stating the number of the Outfit with which it was made. These Models will then be submitted to three members of the Board of Directors of the Y. M. C. A. of Dayton, Ohio, and the awards made by them between April 15 and May 1, 1915.

We want every user of The American Model Builder to feel free to write us at any time when difficulties arise in the building of Models, and we will gladly give our suggestions and help.

THE AMERICAN MECHANICAL TOY COMPANY

DAYTON, OHIO, U. S. A.

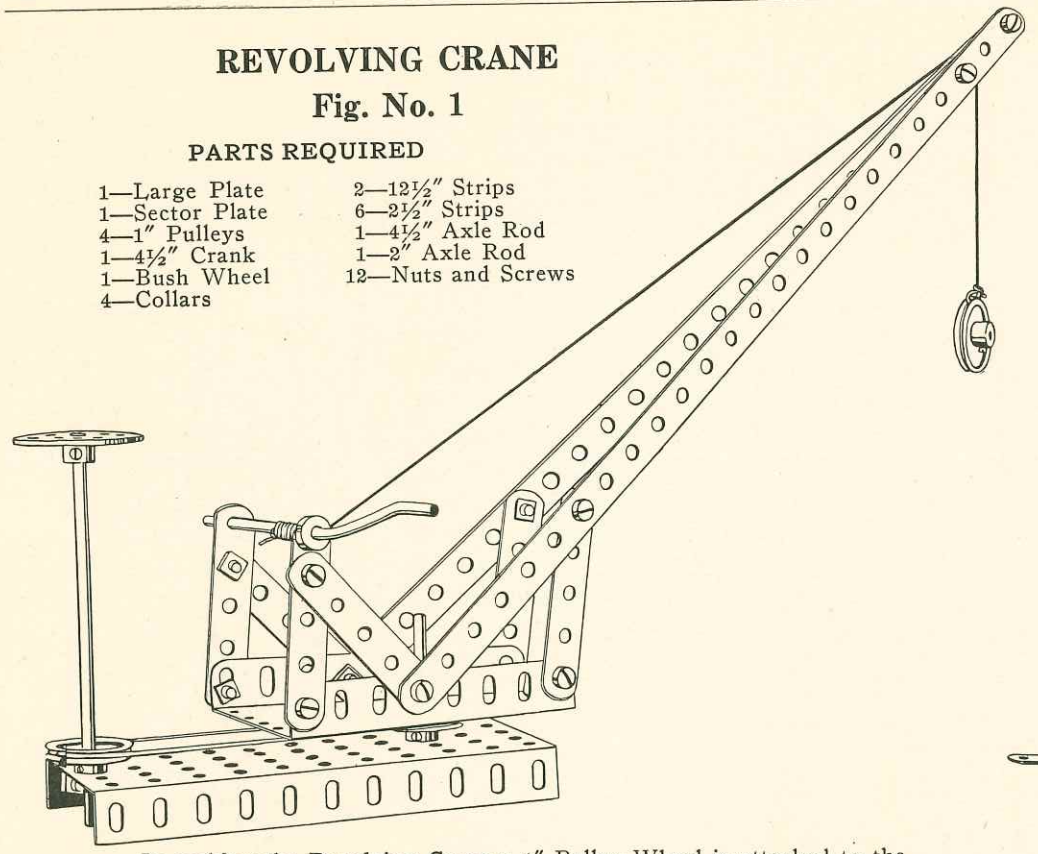


All the Letters shown on this page can be made with The American Model Builder Outfit 1, or with No. 0 and No. 0½ Combined.

REVOLVING CRANE
Fig. No. 1

PARTS REQUIRED

1—Large Plate
1—Sector Plate
4—1″ Pulleys
1—4½″ Crank
1—Bush Wheel
4—Collars
2—12½″ Strips
6—2½″ Strips
1—4½″ Axle Rod
1—2″ Axle Rod
12—Nuts and Screws



In making the **Revolving Crane** a 1″ Pulley Wheel is attached to the 2″ Axle Rod on the under side of the Large Plate. This holds the boom in place so that it can be freely turned from one side to the other.

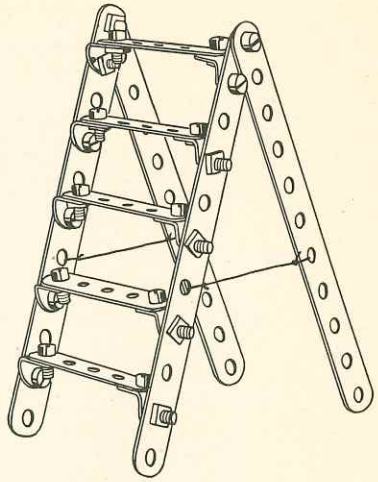
A Collar is attached to the 2″ Axle Rod on the top of the Sector Plate to hold the platform securely.

Owing to the view of the picture it is impossible to show these two parts.

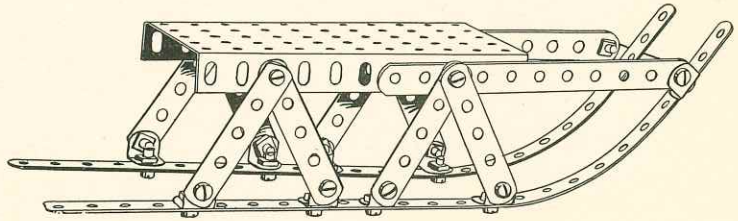
MACHINISTS' LADDER
Fig. No. 2

PARTS REQUIRED

4—5½″ Strips
5—2½″ Strips
10—Angle Brackets
22—Nuts and Screws



MOUNTAIN COASTER
Fig. No. 3



PARTS REQUIRED

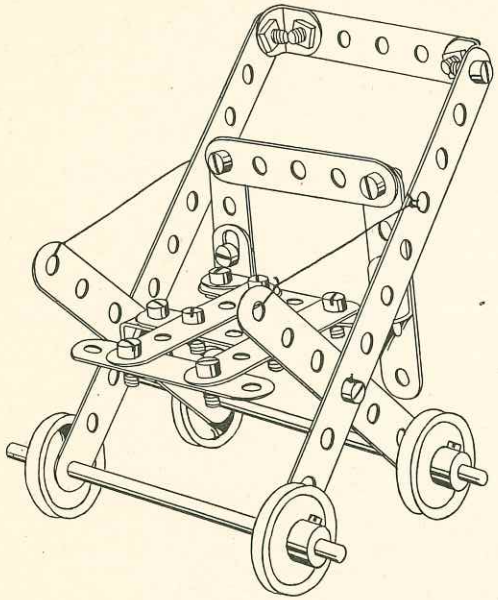
1—Large Plate
2—12½″ Strips
2—5½″ Strips
9—2½″ Strips
10—Angle Brackets
24—Nuts and Screws

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

FOLDING CHAIR

Fig. No. 4

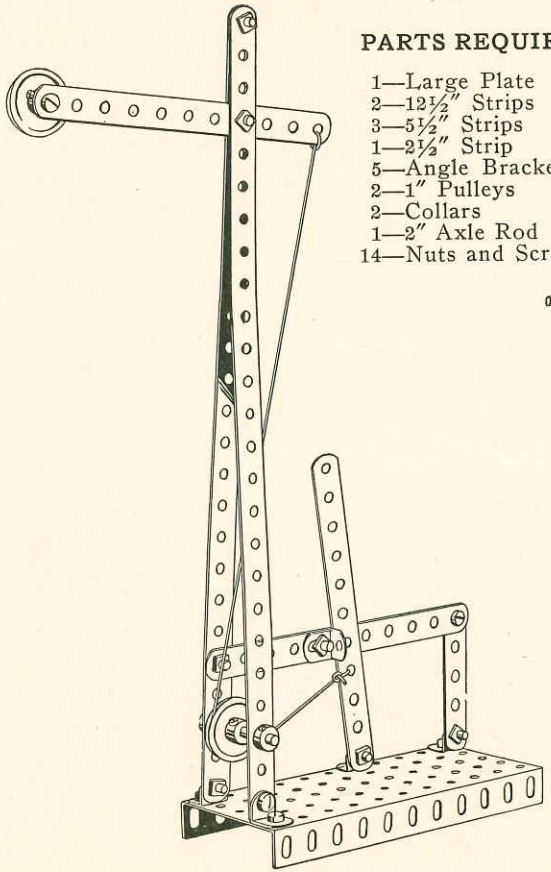


PARTS REQUIRED

2—5½″ Strips
2—3½″ Strips
9—2½″ Strips
6—Angle Brackets
2—4½″ Axle Rods
4—1″ Pulleys
20—Nuts and Screws

RAILWAY SIGNAL

Fig. No. 5

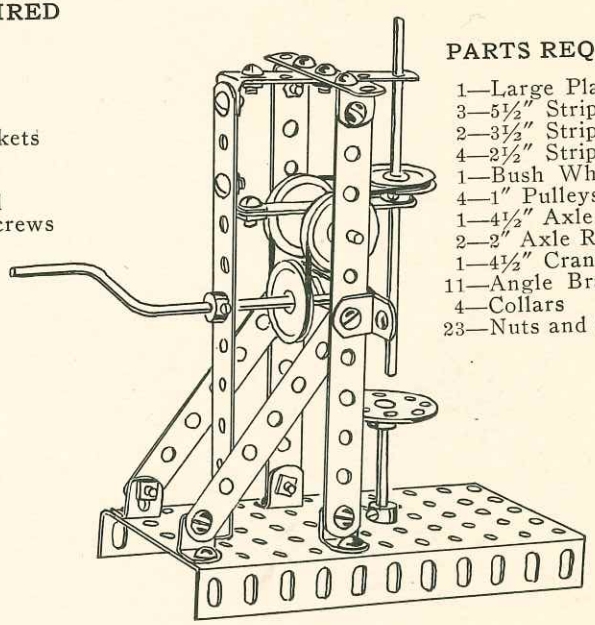


PARTS REQUIRED

1—Large Plate
2—12½″ Strips
3—5½″ Strips
1—2½″ Strip
5—Angle Brackets
2—1″ Pulleys
2—Collars
1—2″ Axle Rod
14—Nuts and Screws

DRILL PRESS

Fig. No. 6



PARTS REQUIRED

1—Large Plate
3—5½″ Strips
2—3½″ Strips
4—2½″ Strips
1—Bush Wheel
4—1″ Pulleys
1—4½″ Axle Rod
2—2″ Axle Rods
1—4½″ Crank
11—Angle Brackets
4—Collars
23—Nuts and Screws

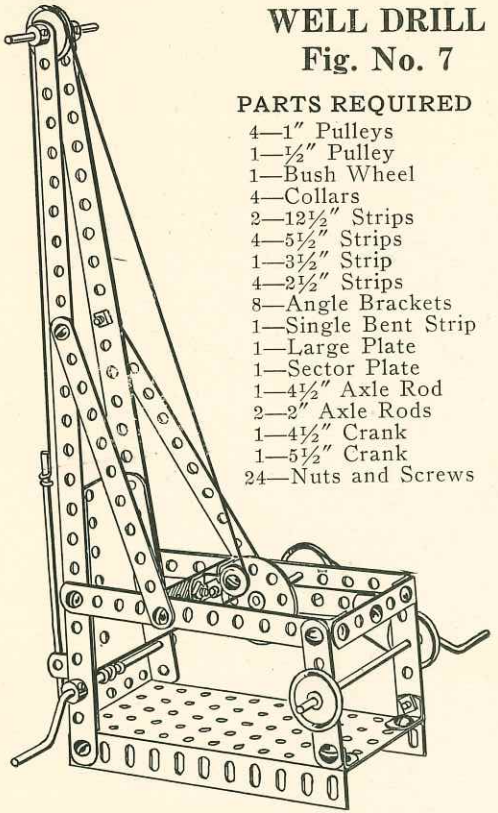
The Drill Press is a very clever little model and shows distinctly how the spindle is driven by the continuous belt. On the under side of the Large Plate a Collar should be attached to the 2″ Axle Rod, fastening this securely to the Plate.

At the top of this 2″ Axle Rod the Bush Wheel is fastened which forms the table for the parts to be drilled.

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

WELL DRILL
Fig. No. 7



PARTS REQUIRED

4—1″ Pulleys
1—½″ Pulley
1—Bush Wheel
4—Collars
2—12½″ Strips
4—5½″ Strips
1—3½″ Strip
4—2½″ Strips
8—Angle Brackets
1—Single Bent Strip
1—Large Plate
1—Sector Plate
1—4½″ Axle Rod
2—2″ Axle Rods
1—4½″ Crank
1—5½″ Crank
24—Nuts and Screws

In building the **Well Drill,** note that a 3½″ Strip is used as a bearing for the 2″ Axle Rod which holds the Bush Wheel.

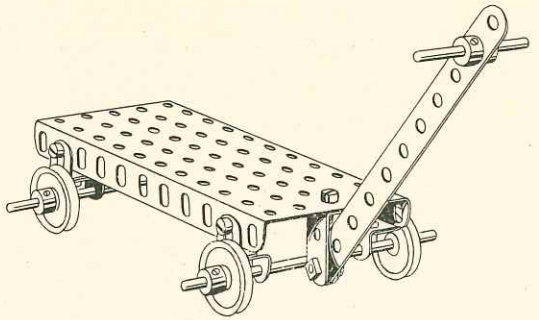
On this Bush Wheel is then attached the ½″ Pulley over which the cord passes which operates the Drill.

Both Cranks should be operated at the same time, the one in the rear giving the up-and-down movement to the Drill, while the one in the front extends the length of the rope as the Drill sinks.

FACTORY TRUCK
Fig. No. 8

PARTS REQUIRED

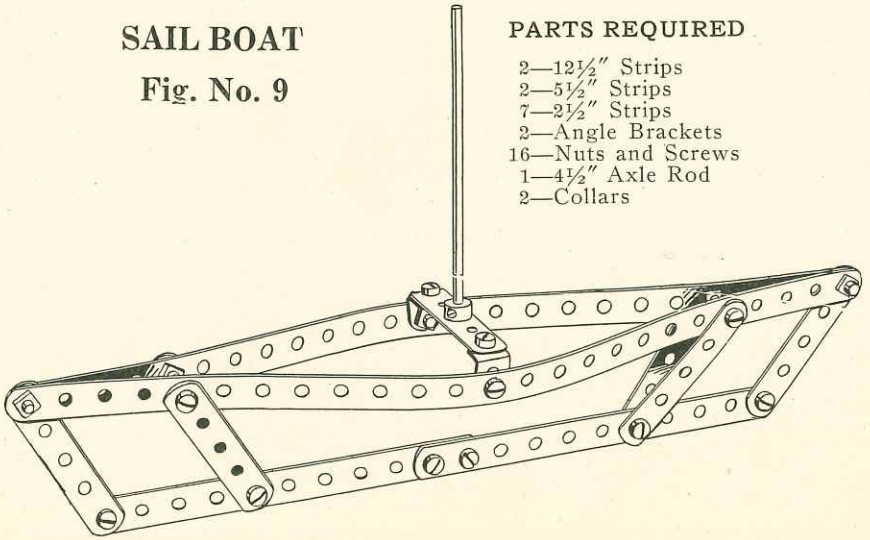
1—Large Plate
1—5½″ Strip
1—Single Bent Strip
8—Angle Brackets
2—4½″ Axle Rods
1—2″ Axle Rod
4—1″ Pulleys
2—Collars
10—Nuts and Screws



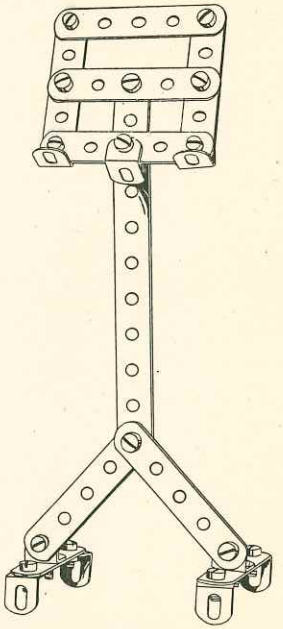
SAIL BOAT
Fig. No. 9

PARTS REQUIRED

2—12½″ Strips
2—5½″ Strips
7—2½″ Strips
2—Angle Brackets
16—Nuts and Screws
1—4½″ Axle Rod
2—Collars



MUSIC RACK
Fig. No. 10



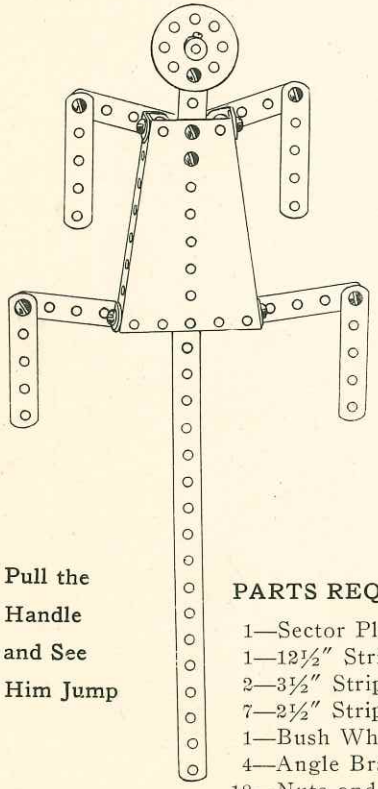
PARTS REQUIRED

1—5½″ Strip
9—2½″ Strips
7—Angle Brackets
17—Nuts and Screws

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

JUMPING JACK
Fig. No. 11

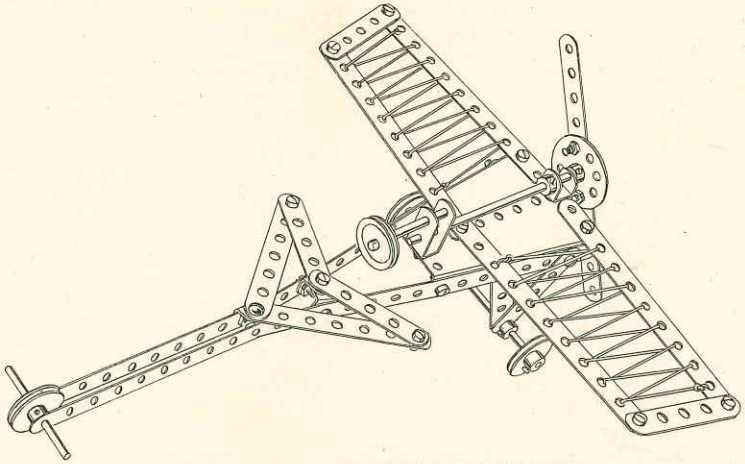


Pull the Handle and See Him Jump

PARTS REQUIRED

1—Sector Plate
1—12½″ Strip
2—3½″ Strips
7—2½″ Strips
1—Bush Wheel
4—Angle Brackets
18—Nuts and Screws

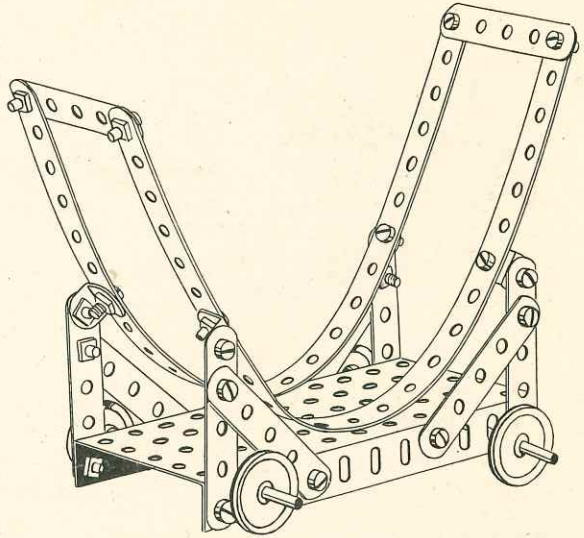
MONOPLANE
Fig. No. 12



PARTS REQUIRED

4—1″ Pulleys
1—Bush Wheel
4—Collars
2—12½″ Strips
4—5½″ Strips
2—3½″ Strips
10—2½″ Strips
5—Angle Brackets
1—Single Bent Strip
1—Sector Plate
2—4½″ Axle Rods
2—2″ Axle Rods
24—Nuts and Screws

WALL PAPER TRUCK
Fig. No. 13



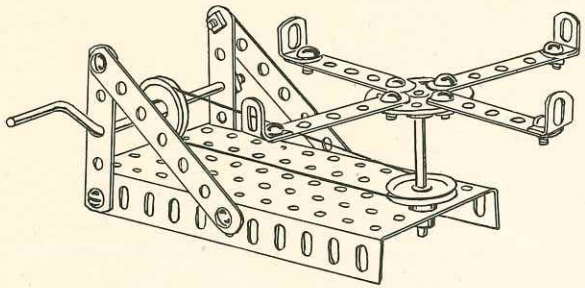
PARTS REQUIRED

1—Large Plate
2—12½″ Strips
10—2½″ Strips
2—4½″ Axle Rods
4—1″ Pulleys
4—Angle Brackets
24—Nuts and Screws

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

CIRCLE SWING
Fig. No. 14

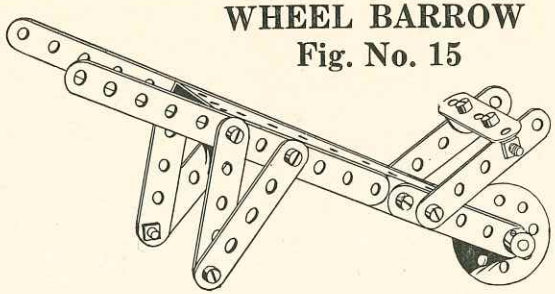


The Circle Swing can be operated by motor if desired. In order to do this, it is necessary to attach another 1" Pulley Wheel to the 4½" Crank and belt the motor direct to this.

PARTS REQUIRED

2—3½" Strips
6—2½" Strips
1—Large Plate
1—Bush Wheel
2—1" Pulleys
1—2" Axle Rod
1—4½" Crank
2—Collars
4—Angle Brackets
14—Nuts and Screws

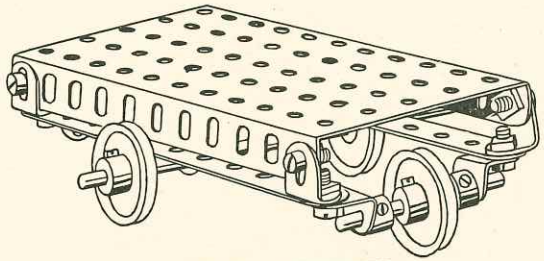
WHEEL BARROW
Fig. No. 15



PARTS REQUIRED

1—Sector Plate
2—5½" Strips
9—2½" Strips
2—Angle Brackets
1—Bush Wheel
1—2" Axle Rod
2—Collars
14—Nuts and Screws

REVOLVING TRUCK
Fig. No. 16



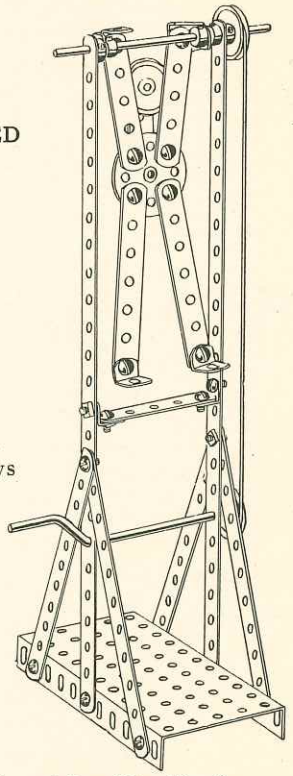
PARTS REQUIRED

1—Large Plate
2—5½" Strips
3—1" Pulleys
8—Angle Brackets
1—4½" Axle Rod
1—2" Axle Rod
2—Collars
10—Nuts and Screws

PERFORMING ACROBAT
Fig. No. 17

PARTS REQUIRED

1—Large Plate
2—12½" Strips
4—5½" Strips
2—3½" Strips
4—2½" Strips
1—4½" Crank
1—4½" Axle Rod
1—Bush Wheel
3—1" Pulleys
4—Collars
8—Angle Brackets
22—Nuts and Screws

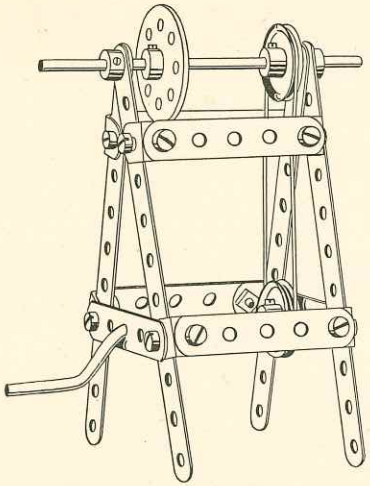


Turn the Crank and See Him Do the Giant Swing.

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

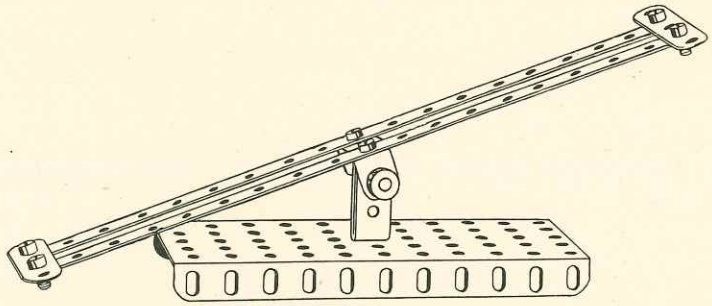
GRIND STONE
Fig. No. 18



PARTS REQUIRED

4—5½″ Strips
6—2½″ Strips
8—Angle Brackets
1—4½″ Axle Rod
1—5½″ Crank
1—Bush Wheel
2—1″ Pulleys
3—Collars
16—Nuts and Screws

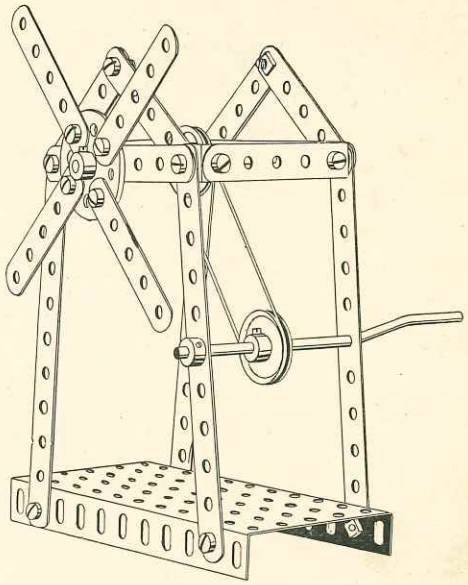
TEETER
Fig. No. 19



PARTS REQUIRED

1—Large Plate
2—12½″ Strips
2—2½″ Strips
1—Single Bent Strip
2—Angle Brackets
1—2″ Axle Rod
2—Collars
7—Nuts and Screws

WINDMILL
Fig. No. 20



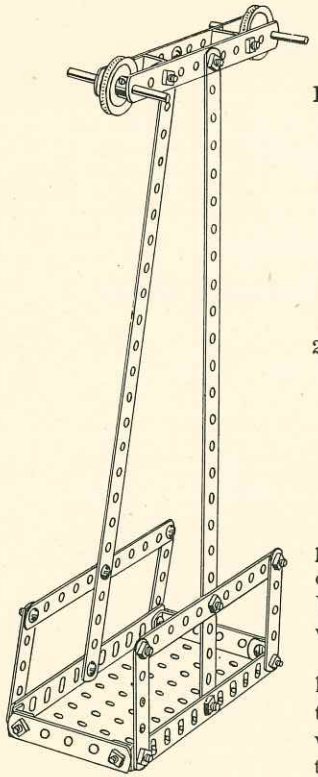
PARTS REQUIRED

1—Large Plate
4—5½″ Strips
2—3½″ Strips
10—2½″ Strips
4—Angle Brackets
1—4½″ Axle Rod
1—5½″ Crank
2—1″ Pulleys
1—Bush Wheel
17—Nuts and Screws
4—Collars

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

TRANSPORTER
Fig. No. 21



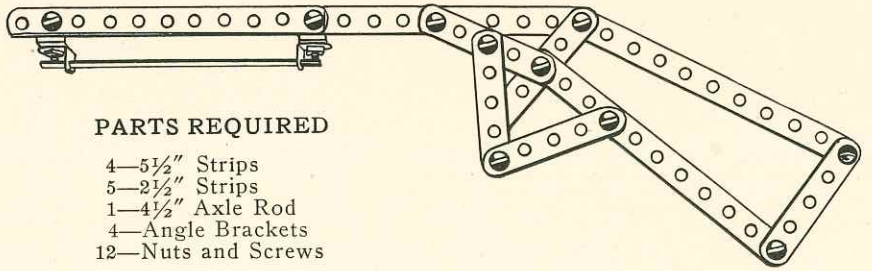
PARTS REQUIRED

1—Large Plate
2—12½″ Strips
4—5½″ Strips
6—2½″ Strips
2—2″ Axle Rods
2—1″ Pulleys
2—Collars
8—Angle Brackets
24—Nuts and Screws

In constructing the **Transporter,** a Collar is attached on either side of the 1″ Pulley Wheels in order to hold these wheels in perfect center.

By stretching a string tightly from one end of the room to the other this Transporter will carry articles from station to station.

PISTOL
Fig. No 22



PARTS REQUIRED

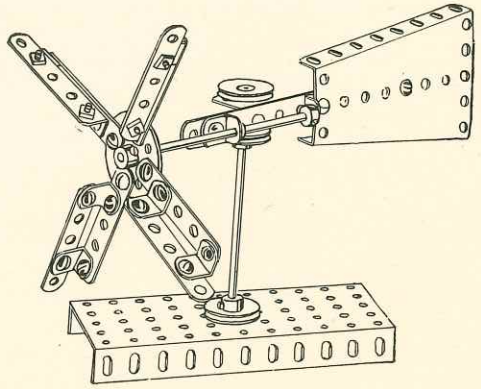
4—5½″ Strips
5—2½″ Strips
1—4½″ Axle Rod
4—Angle Brackets
12—Nuts and Screws

WEATHER VANE
Fig. No. 23

The Weather Vane is a clever little model and is so well balanced that if it is set in an open space where a free circulation of air can get to it, the wheel will revolve freely.

A Single Bent Strip should be fastened securely to the 5½″ Strip which is bolted to the Sector Plate. This Single Bent Strip forms the bearing on which the entire device turns.

The two Pulley Wheels at the top of the 4½″ Axle Rod are simply used as bearings to keep the upper part of the framework in place.



PARTS REQUIRED

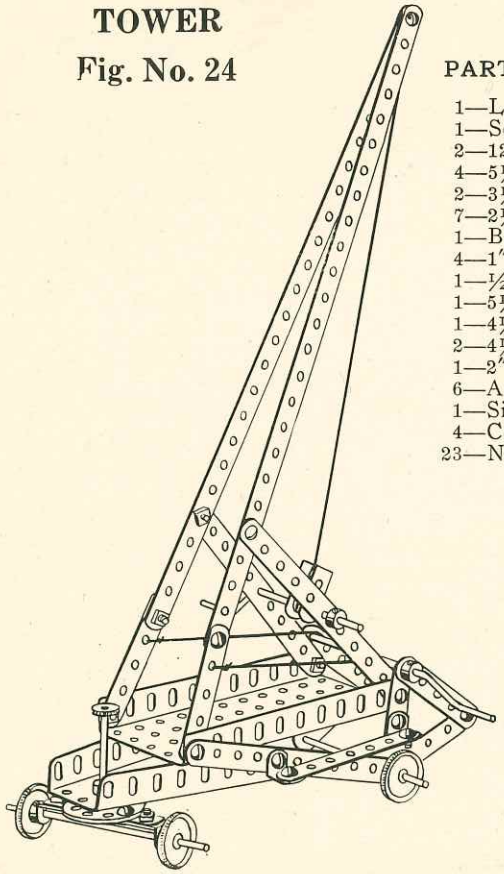
1—Large Plate
1—Sector Plate
1—5½″ Strip
8—2½″ Strips
2—4½″ Axle Rods
1—Bush Wheel
3—1″ Pulleys
3—Collars
1—Single Bent Strip
10—Angle Brackets
24—Nuts and Screws

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

AERIAL WATER TOWER

Fig. No. 24



PARTS REQUIRED

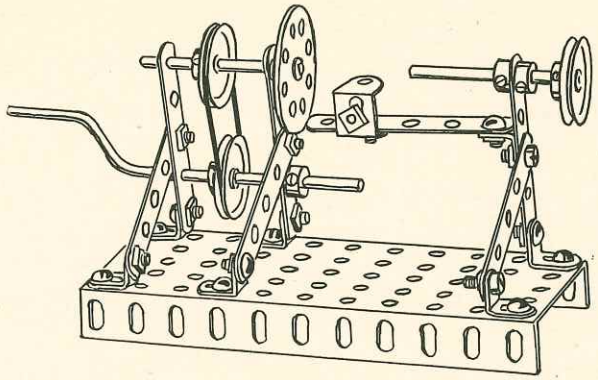
1—Large Plate
1—Sector Plate
2—12½″ Strips
4—5½″ Strips
2—3½″ Strips
7—2½″ Strips
1—Bush Wheel
4—1″ Pulleys
1—½″ Pulley
1—5½″ Crank
1—4½″ Crank
2—4½″ Axle Rods
1—2″ Axle Rod
6—Angle Brackets
1—Single Bent Strip
4—Collars
23—Nuts and Screws

The **Aerial Water Tower** is made so that it will collapse the same as the water tower that is used by the fire department.

By turning the lower crank the tower can be raised or lowered at will, while the upper crank will change the location of the tower after it is raised.

LATHE

Fig. No. 25



This is a simple type of **Turning Lathe** and will turn up soft material such as a candle or chalk.

Any material to be turned up should be fastened to the Bush Wheel by means of Angle Brackets and the 2″ Axle Rod inserted in the opposite end.

This little model can also be operated by motor by attaching another 1″ Pulley Wheel to the 4½″ Crank.

PARTS REQUIRED

1—Large Plate
7—2½″ Strips
1—Bush Wheel
3—1″ Pulleys
2—2″ Axle Rods
1—4½″ Crank
4—Collars
9—Angle Brackets
18—Nuts and Screws

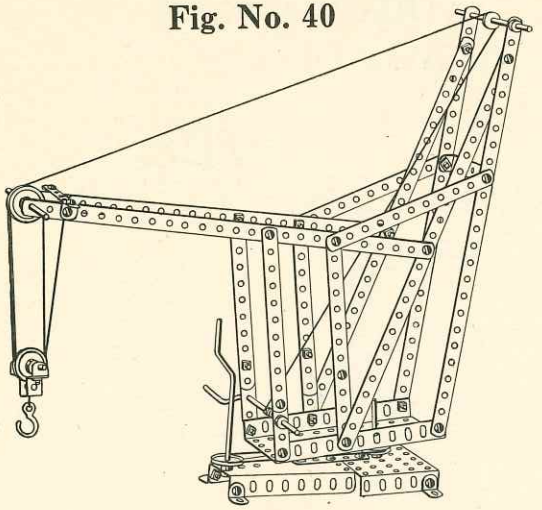
The Lathe completes the models which may be made with The American Model Builder Outfit No. 1. By purchasing Accessory Outfit No. 1½, 12 additional Models can be made, some of which are shown on the following pages.

For price of separate parts and Accessory Outfits, see pages 28 and 29.

All Models shown on this page can be made with The American Model Builder Outfit No. 1, or with No. 0 and No. 0½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

REVOLVING DERRICK
Fig. No. 40



PARTS REQUIRED

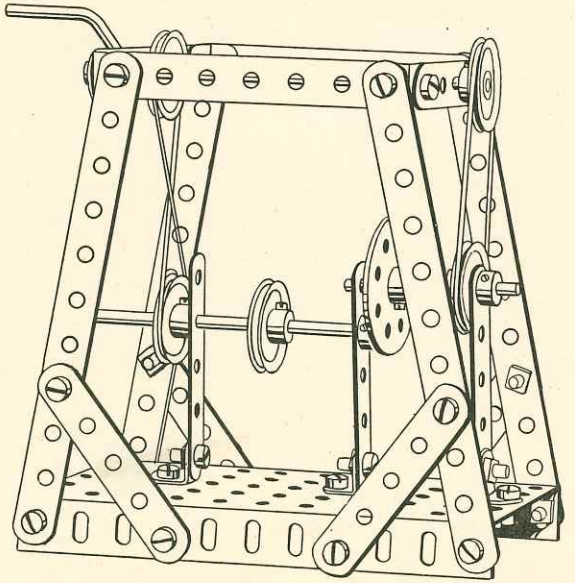
1—Large Plate	6—12½″ Strips	2—2″ Axle Rods
1—Small Plate	6—5½″ Strips	1—4½″ Crank
1—Sector Plate	7—2½″ Strips	1—5½″ Crank
6—1″ Pulleys	1—Double Bent Strip	1—Hook
1—½″ Pulley	10—Angle Brackets	36—Nuts and Screws
1—Bush Wheel	1—4½″ Axle Rod	4—Wood Screws
6—Collars	1—3½″ Axle Rod	

In constructing the **Revolving Derrick,** note that the Small Rectangular Plate and the Sector Plate are tied together with a 2½″ Strip. On the under side of the 2″ Axle Rod extending through the Small Plate, a Collar should be fastened securely so as to hold the Boom in position. To this same 2″ Axle Rod on the top of the Small Plate is attached a 1″ Pulley, and above this, fastened to the under side of the Large Plate, is a Bush Wheel. These parts are slightly hidden from view in the drawing.

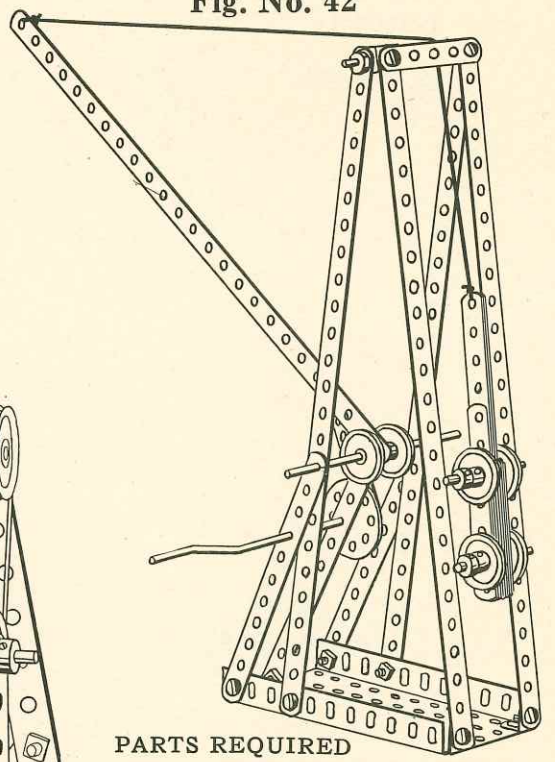
BUFFER & GRINDER
Fig. No. 41

PARTS REQUIRED

1—Large Plate	1—2″ Axle Rod
4—5½″ Strips	7—Angle Brackets
2—3½″ Strips	5—1″ Pulleys
9—2½″ Strips	1—Bush Wheel
1—5½″ Crank	4—Collars
1—3½″ Axle Rod	26—Nuts and Screws



PILE DRIVER
Fig. No. 42



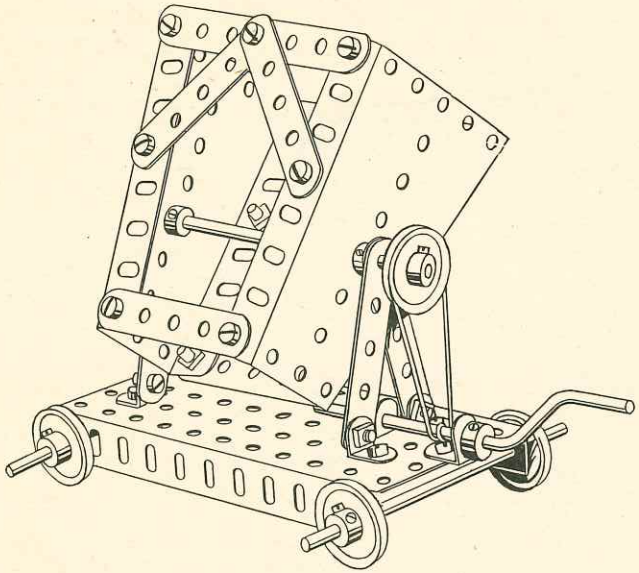
PARTS REQUIRED

1—Large Plate	9—2½″ Strips
1—Bush Wheel	2—2″ Axle Rods
1—½″ Pulley	1—3½″ Axle Rod
6—1″ Pulleys	1—4½″ Axle Rod
5—Collars	1—4½″ Crank
5—12½″ Strips	7—Angle Brackets
6—5½″ Strips	14—Nuts and Screws
2—3½″ Strips	

All Models shown on this page can be made with The American Model Builder Outfit No. 2, or with No. 1 and No. 1½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

DUMP CAR
Fig. No. 43



PARTS REQUIRED

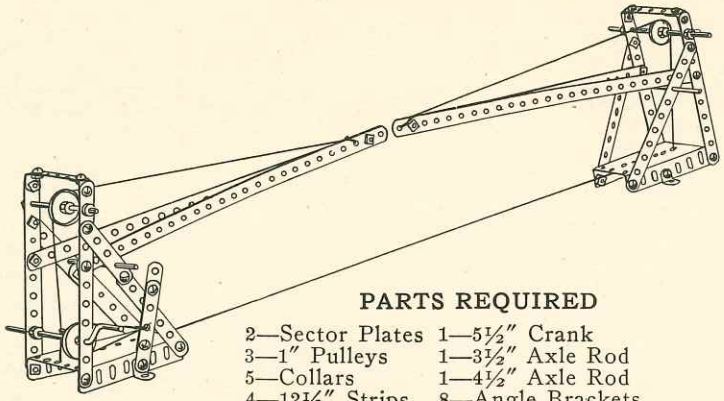
1—Large Plate	5—1″ Pulleys
2—Sector Plates	3—4½″ Axle Rods
2—3½″ Strips	6—Angle Brackets
10—2½″ Strips	6—Collars
1—4½″ Crank	23—Nuts and Screws

This Model represents the **Dump Car** such as is used by Construction gangs, and is so arranged that it will tip to either side of the track.

The sides consist of two Sector Plates held together at the top by two 3½″ Strips and two 2½″ Strips at the bottom. The 4½″ Axle is passed through the fifth hole of the Sector Plate and is held firmly by placing a Collar on the inside and outside of the Sector Plates.

The Car will dump to either side by turning the crank. By inserting a piece of bent cardboard, it can be made to hold material.

RAILROAD GATES
Fig. No. 44

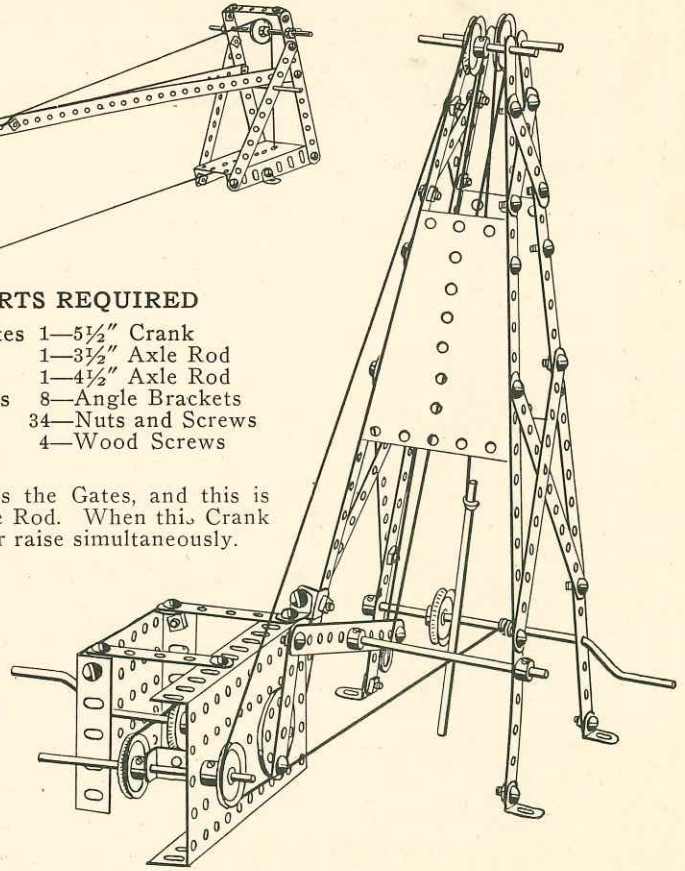


PARTS REQUIRED

2—Sector Plates	1—5½″ Crank
3—1″ Pulleys	1—3½″ Axle Rod
5—Collars	1—4½″ Axle Rod
4—12½″ Strips	8—Angle Brackets
6—5½″ Strips	34—Nuts and Screws
2—3½″ Strips	4—Wood Screws
6—2½″ Strips	

One continuous Cord operates the Gates, and this is fastened securely to the 4½″ Axle Rod. When this Crank is turned, both Gates will lower or raise simultaneously.

OIL WELL DRILL
Fig. No. 45

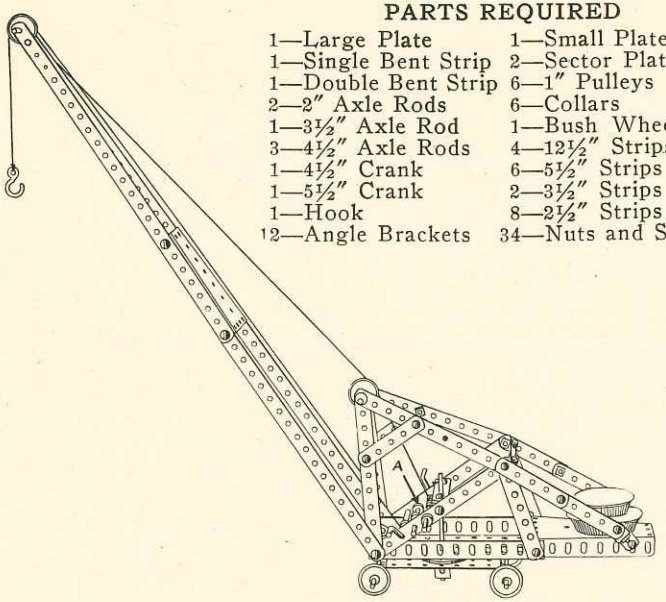


PARTS REQUIRED

1—Large Plate	2—2″ Axle Rods	1—4½″ Crank	10—Angle Brackets
1—Small Plate	1—3½″ Axle Rod	1—5½″ Crank	35—Nuts and Screws
2—Sector Plates	2—4½″ Axle Rods	1—Hook	4—Wood Screws
1—Bush Wheel			
6—1″ Pulleys			
6—Collars			
4—12½″ Strips			
5—5½″ Strips			
2—3½″ Strips			
7—2½″ Strips			

All Models shown on this page can be made with The American Model Builder Outfit No. 2, or with No. 1 and No. 1½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

REVOLVING TRAVELING CRANE
Fig. No. 46

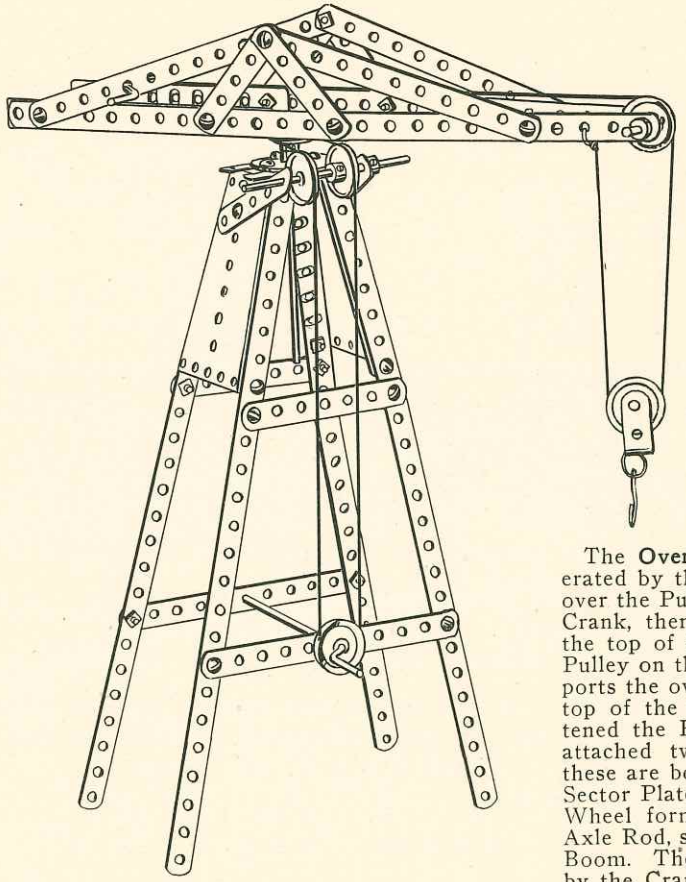


PARTS REQUIRED

1—Large Plate	1—Small Plate
1—Single Bent Strip	2—Sector Plates
1—Double Bent Strip	6—1″ Pulleys
2—2″ Axle Rods	6—Collars
1—3½″ Axle Rod	1—Bush Wheel
3—4½″ Axle Rods	4—12½″ Strips
1—4½″ Crank	6—5½″ Strips
1—5½″ Crank	2—3½″ Strips
1—Hook	8—2½″ Strips
12—Angle Brackets	34—Nuts and Screws

In constructing this **Crane** a weight should be used on the back end to counterbalance the weight of the boom. This, in practice, is taken care of by the weight of the machinery. The 4½″ Axle Rod marked "A" in the drawing serves as a double brake for the two cranks. This Axle Rod has two Collars fastened in the center, so that it can be shifted to either side and will prevent the Crank from turning. On the under side of the Small Plate is attached a Double Bent Strip to form a bearing for the 3½″ Axle Rod, which supports the Crane.

OVERHEAD ROTARY CRANE
Fig. No. 47



PARTS REQUIRED

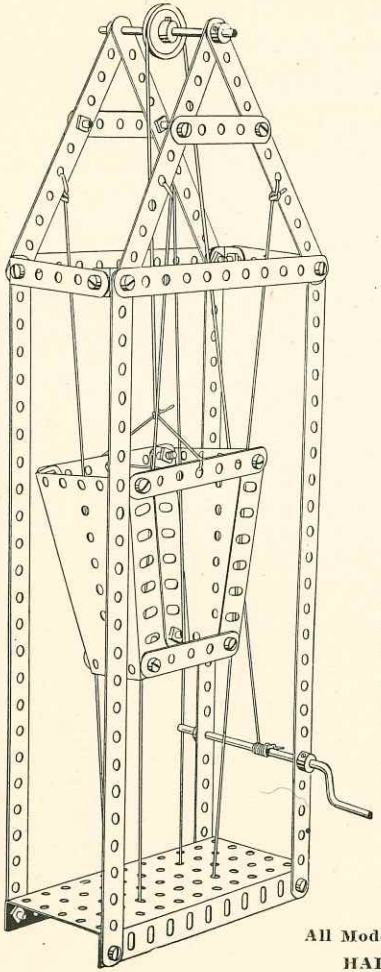
1—Large Plate
2—Sector Plates
6—1″ Pulleys
1—Bush Wheel
6—Collars
6—12½″ Strips
6—5½″ Strips
2—3½″ Strips
8—2½″ Strips
1—5½″ Crank
1—4½″ Crank
1—4½″ Axle Rod
1—3½″ Axle Rod
2—2″ Axle Rods
2—Angle Brackets
1—Single Bent Strip
1—Hook
34—Nuts and Screws

The **Overhead Rotary Crane** is operated by the continuous belt passing over the Pulley Wheel attached to the Crank, then over the two Pulleys at the top of the frame and around the Pulley on the 2″ Axle Rod which supports the overhanging Boom. On the top of the two Sector Plates is fastened the Bush Wheel, to which are attached two Angle Brackets, and these are bolted fast to the top of the Sector Plate. The Collar in this Bush Wheel forms the bearing for the 2″ Axle Rod, supporting the overhanging Boom. The load is raised or lowered by the Crank in the 5½″ Strip at the top.

All Models shown on this page can be made with The American Model Builder Outfit No. 2, or with No. 1 and No. 1½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

ELEVATOR
Fig. No. 48

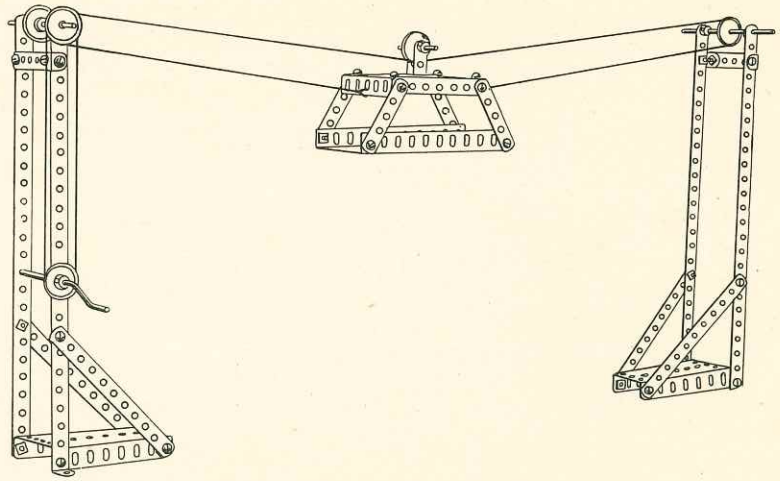


PARTS REQUIRED

1—Large Plate
4—12½" Strips
6—5½" Strips
2—3½" Strips
6—2½" Strips
2—Sector Plates
4—Angle Brackets
1—5½" Crank
1—4½" Axle Rod
1—1" Pulley
4—Collars
24—Nuts and Screws

An automatic stop can be provided for this **Elevator** by inserting a 4½" Axle Rod in the hole just above the Crank. This Axle Rod will come in contact with the Crank handle and the cage can be stopped at any desired position in the shaft. When hoisting small material, this cage should be lined with cardboard.

TRANSPORTER
Fig. No. 49



PARTS REQUIRED

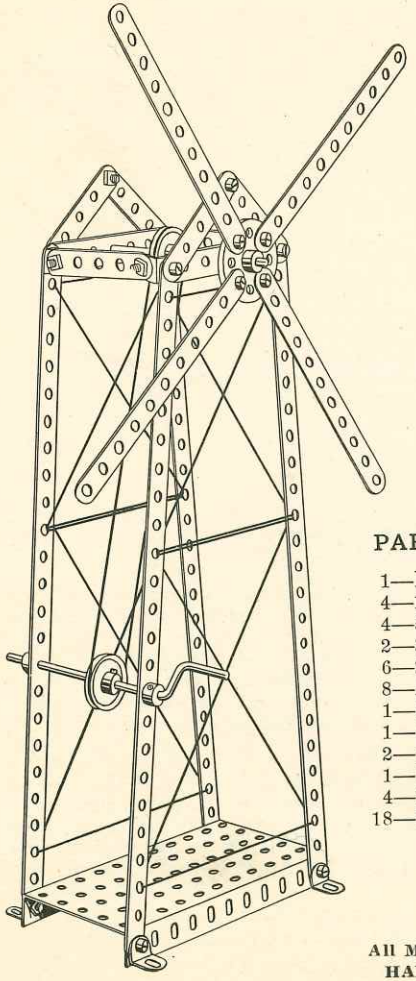
1—Large Plate
1—Small Plate
2—Sector Plates
5—1" Pulleys
6—Collars
4—12½" Strips
4—5½" Strips
2—3½" Strips
6—2½" Strips
1—Single Bent Strip
1—5½" Crank
1—2" Axle Rod
2—4½" Axle Rods
12—Angle Brackets
32—Nuts and Screws
4—Wood Screws

This **Transporter** should be mounted on a board and the two uprights can be set any distance apart. It will afford a great deal of fun to connect this up with your Electric Train and carry goods from one track to the other by means of the carrier suspended between the two uprights. This carrier is operated by the Crank inserted in the 12½" Strips.

All Models shown on this page can be made with The American Model Builder Outfit No. 2, or with No. 1 and No. 1½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

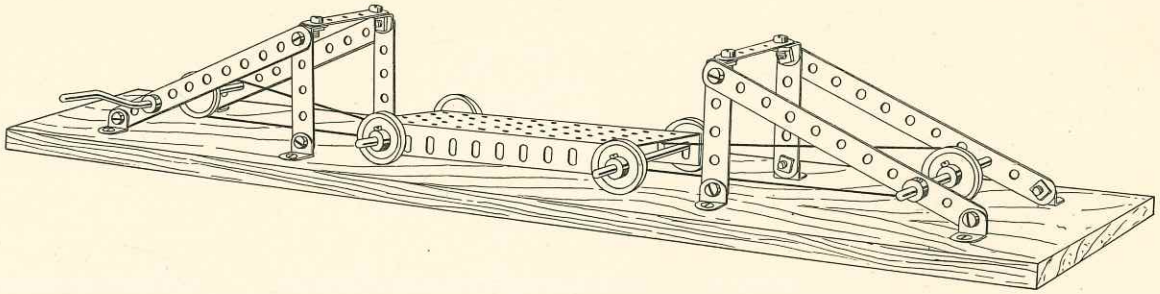
WINDMILL Fig. No. 50



PARTS REQUIRED

1—Large Plate
4—12½″ Strips
4—5½″ Strips
2—3½″ Strips
6—2½″ Strips
8—Angle Brackets
1—5½″ Crank
1—4½″ Axle Rod
2—1″ Pulleys
1—Bush Wheel
4—Collars
18—Nuts and Screws

ENDLESS ROPE RAILWAY
Fig. No. 51



PARTS REQUIRED

1—Large Plate
3—4½″ Axle Rods
6—1″ Pulleys
1—5½″ Crank
4—5½″ Strips
6—2½″ Strips
12—Angle Brackets
4—Collars
16—Nuts and Screws

In the drawing of the **Endless Rope Railway** we show the two ends closely set together. In actual practice, these should be set apart and mounted on a board, as the truck will travel back and forth any distance and it is only necessary to extend the length of the cord.

The Endless Rope Railway completes the models which can be made with The American Model Builder Outfit No. 2. By purchasing Accessory Outfit No. 2½, Models Nos. 60 to 72 inclusive can be made, which are shown on the following pages.

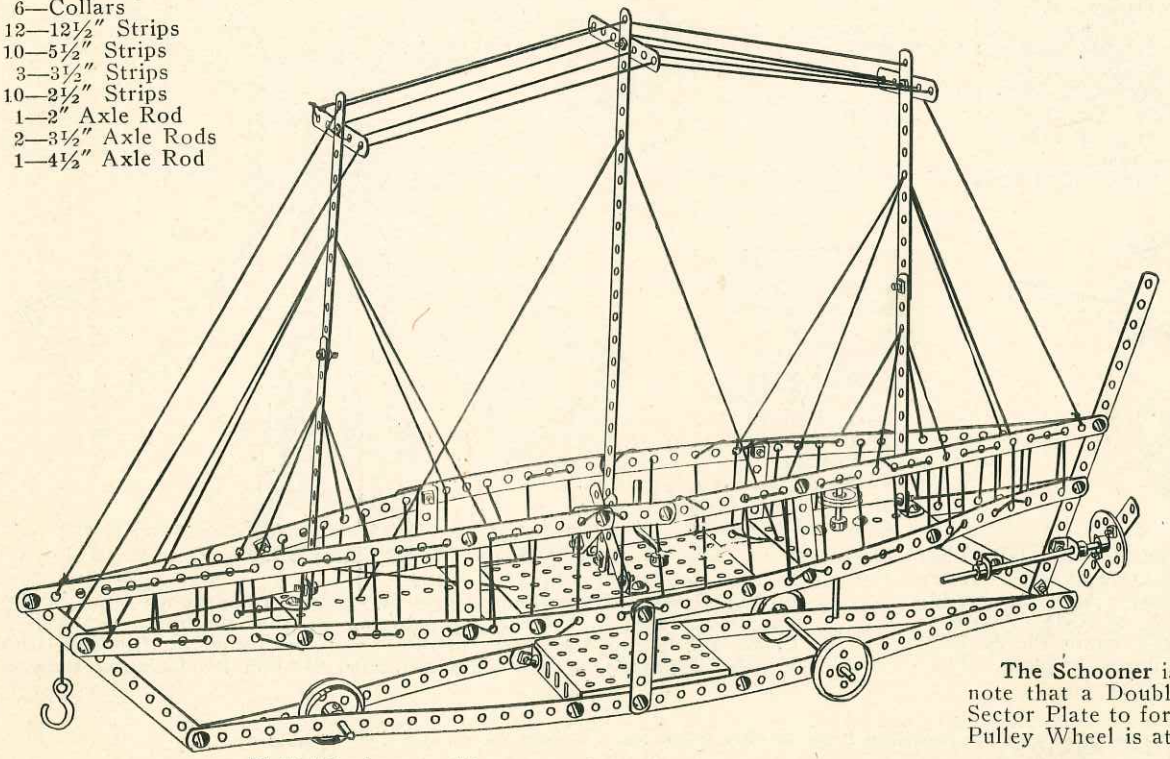
For price of separate parts and Accessory Outfits, see pages 79 and 80.

All Models shown on this page can be made with The American Model Builder Outfit No. 2, or with No. 1 and No. 1½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

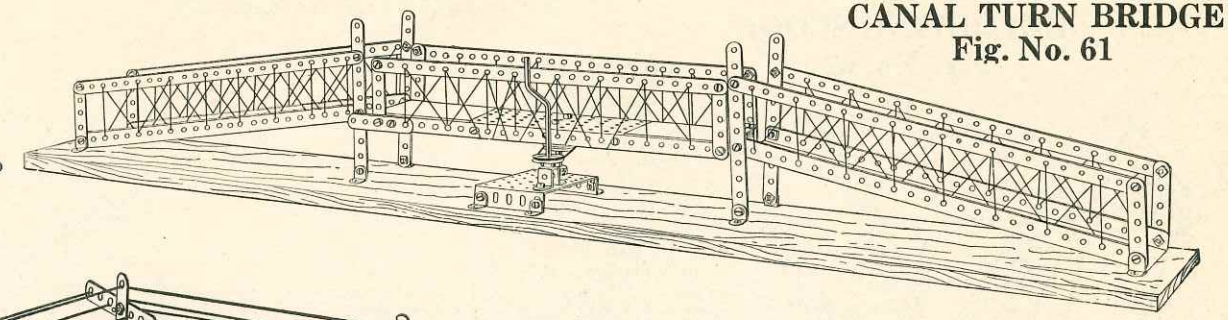
SCHOONER
Fig. No. 60

PARTS REQUIRED

1—Large Plate
1—Small Plate
2—Sector Plates
3—Flanged Wheels
1—Bush Wheel
1—1″ Pulley
6—Collars
12—12½″ Strips
10—5½″ Strips
3—3½″ Strips
10—2½″ Strips
1—2″ Axle Rod
2—3½″ Axle Rods
1—4½″ Axle Rod
1—4½″ Crank
1—Double Bent Strip
1—Hook
11—Angle Brackets
60—Nuts and Screws



CANAL TURN BRIDGE
Fig. No. 61



PARTS REQUIRED

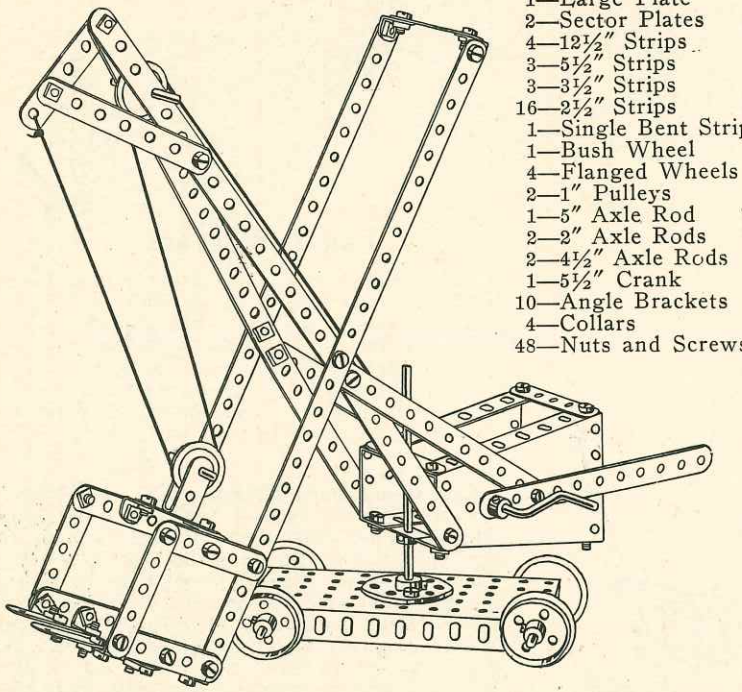
4—12½″ Angle Girders
8—12½″ Strips
4—5½″ Strips
13—2½″ Strips
12—Angle Brackets
1—Large Plate
1—Small Plate
1—Double Bent Strip
2—1″ Pulleys
1—4½″ Crank
1—Bush Wheel
1—2″ Axle
2—Collars
45—Nuts and Screws

The **Canal Turn Bridge** when completed is a very attractive model and works perfectly. The swinging part of the Bridge is made by bolting two 12½″ Strips to the sides of a Large Plate. A Bush Wheel should then be bolted on the under side, in the center of this Large Plate. Then fasten a 2″ Axle Rod in the Bush Wheel, securely fastening the Set Screw. At the lower end of this 2″ Axle Rod a 1″ Pulley Wheel should be fastened. this being belted to the Pulley Wheel attached to the Crank. For the floor of this Bridge, ordinary cardboard can be used, cut to size.

The Schooner is a test model and we give no description except to note that a Double Bent Strip is fastened on the under side of the Sector Plate to form a bearing for the 3½″ Axle Rod, to which the 1″ Pulley Wheel is attached.

All Models shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

REVOLVING SCOOP
Fig. No. 62

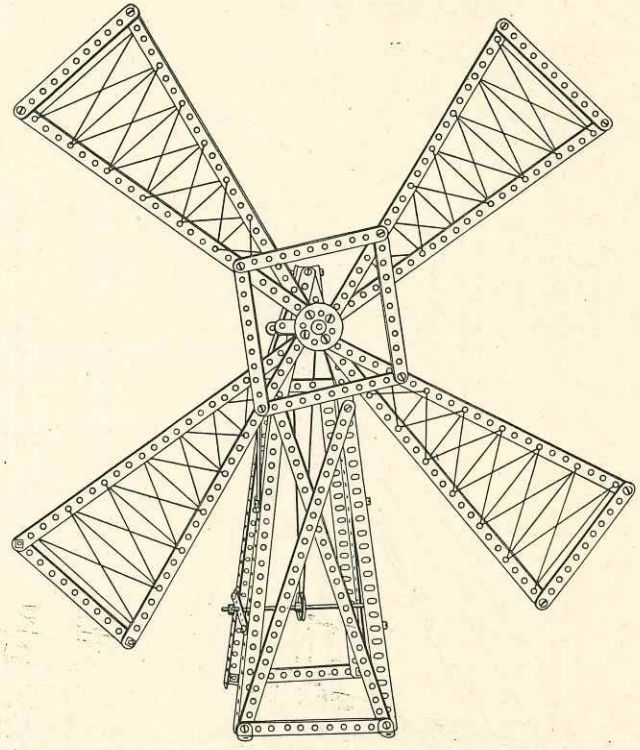


PARTS REQUIRED

1—Large Plate
2—Sector Plates
4—12½" Strips
3—5½" Strips
3—3½" Strips
16—2½" Strips
1—Single Bent Strip
1—Bush Wheel
4—Flanged Wheels
2—1" Pulleys
1—5" Axle Rod
2—2" Axle Rods
2—4½" Axle Rods
1—5½" Crank
10—Angle Brackets
4—Collars
48—Nuts and Screws

The Revolving Scoop is very interesting, yet simple to build. The Bush Wheel should be bolted fast to the Large Plate and the 5" Axle fastened by tightening the Set Screw in the Bush Wheel. A Collar should then be fastened on the underside of the Plate on the 5" Axle. Another Collar should be fastened to the 5" Axle on which the Sector Plates rest, and another on the top to hold the Sector Plates firmly in place. The rest of the construction is simple and needs no explanation.

POWER WINDMILL
Fig. No. 63



PARTS REQUIRED

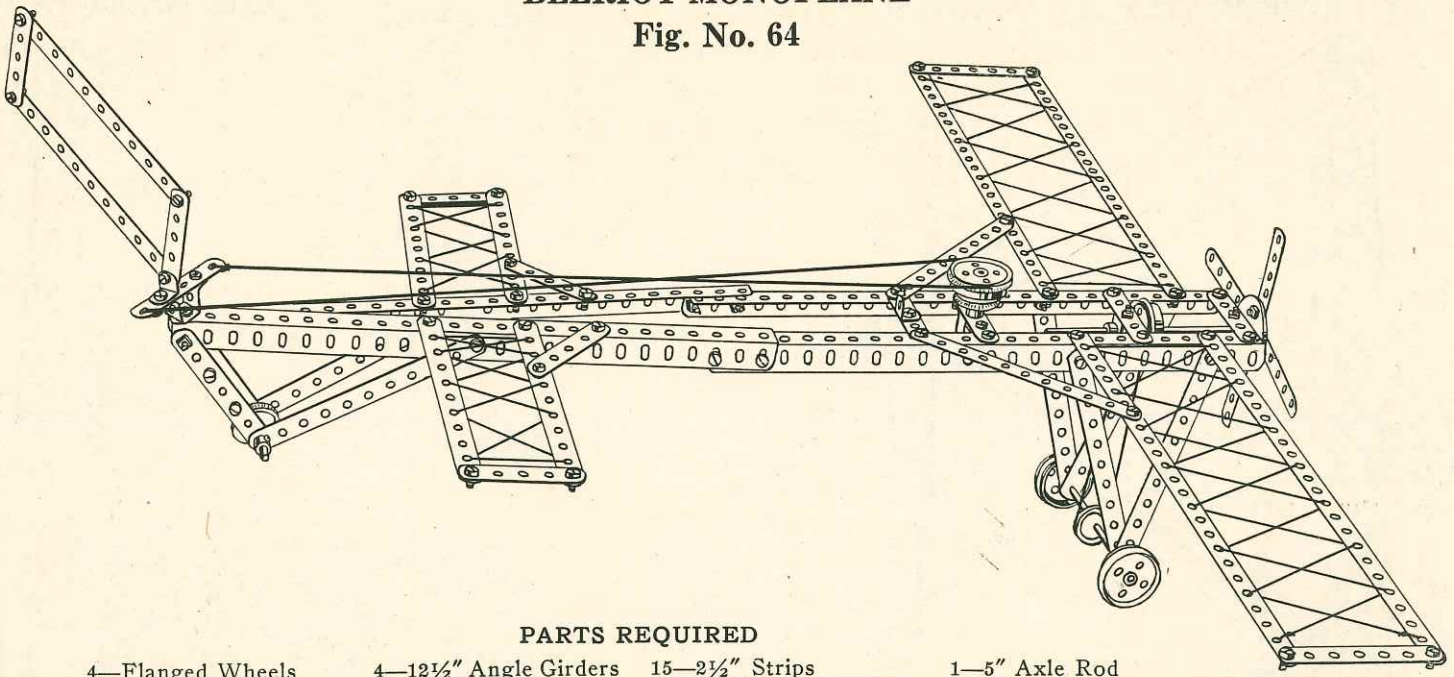
4—12½" Angle Girders
10—12½" Strips
18—5½" Strips
2—3½" Strips
3—2½" Strips
2—5" Axle Rods
2—1" Pulleys
1—Bush Wheel
4—Collars
8—Angle Brackets
45—Nuts and Screws
4—Wood Screws

The Power Windmill needs no particular explanation. This Model can be operated by a Motor by fastening another 1" Pulley to the 6½" Crank and belting the Motor to this. The appearance of the Model can also be improved by using colored Baby Ribbon for lacing instead of Cord.

All Models shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

BLERIOT MONOPLANE
Fig. No. 64



PARTS REQUIRED

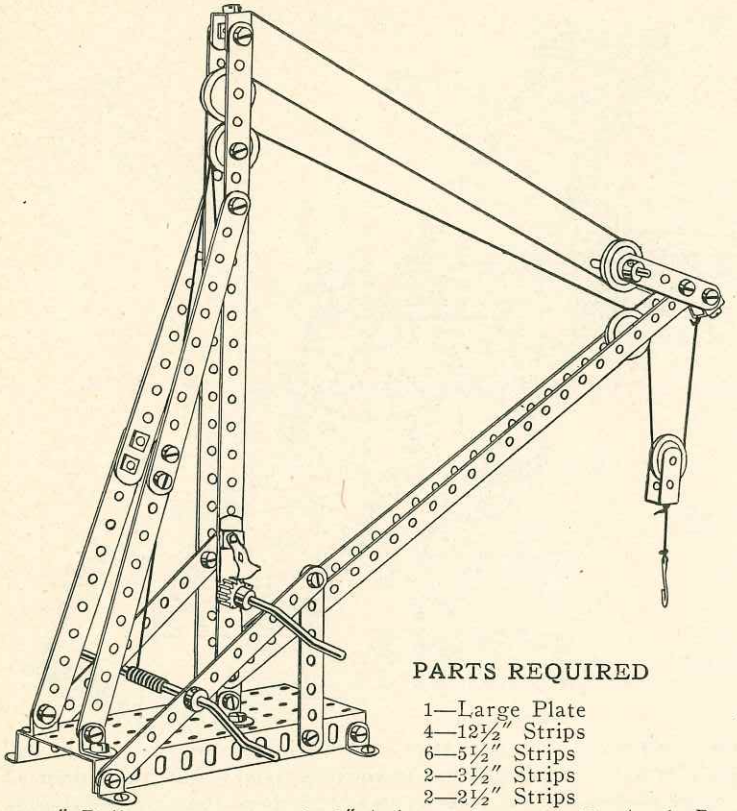
4—Flanged Wheels	4—12½" Angle Girders	15—2½" Strips	1—5" Axle Rod
1—Bush Wheel	4—12½" Strips	2—Double Bent Strips	4—Angle Brackets
3—1" Pulleys	16—5½" Strips	2—2" Axle Rods	60—Nuts and Screws
5—Collars	2—3½" Strips	1—4½" Axle Rod	

The Bleriot Monoplane is a good representation of the original model. The main frame is made of four 12½" Angle Girders bolted together at one end and fastened at the front end with a 2½" Cross Strip. The main plane is made of two 12½" Strips, held together at the ends by two 3½" Strips, supported from the Angle Girder by means of two 5½" Strips. The center plane is made of four 5½" Strips fastened at the ends by two 2½" Strips and held in place by two 2½" Strips, bolted to the Angle Girders. The rear plane is made of two 5½" Strips and is operated by means of a Double Bent Strip fastened to the top of the Angle Girders. To this Double Bent Strip is bolted a 2½" Strip, which is connected with the steering wheel by means of a cord. By operating this model over the floor, the fan will revolve by means of the belt which connects the 1" Pulley Wheel on the 5" Axle Rod to the Flanged Wheel fastened to the Propeller Shaft.

The Model shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

DERRICK
Fig. No. 65



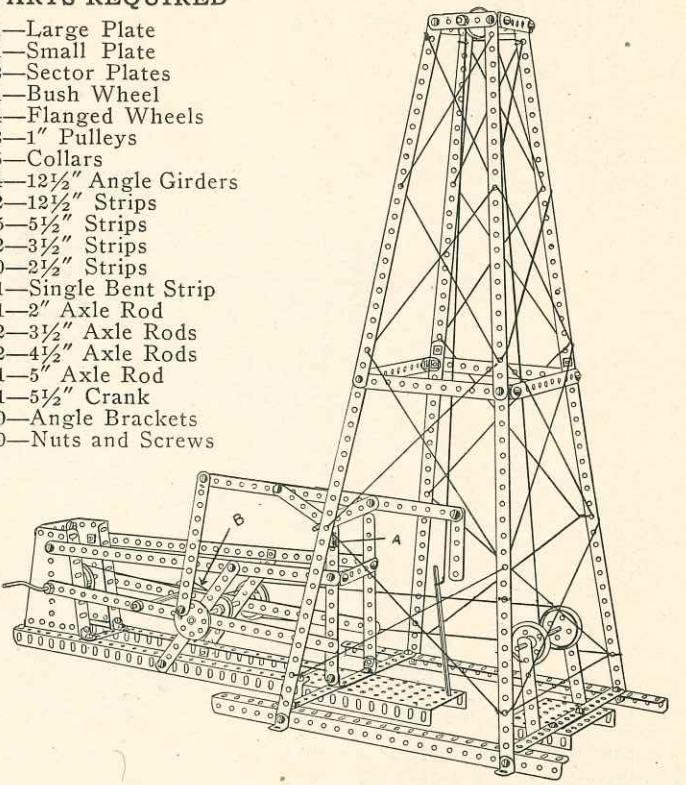
PARTS REQUIRED

1—Large Plate
4—12½″ Strips
6—5½″ Strips
2—3½″ Strips
2—2½″ Strips
4—1″ Pulleys
1—½″ Pulley
1—½″ Pinion
1—Pawl
3—2″ Axles
2—5½″ Cranks
1—Hook
1—Single Bent Strip
12—Angle Brackets
5—Collars
35—Nuts and Screws
4—Wood Screws

OIL DERRICK
Fig. No. 66

PARTS REQUIRED

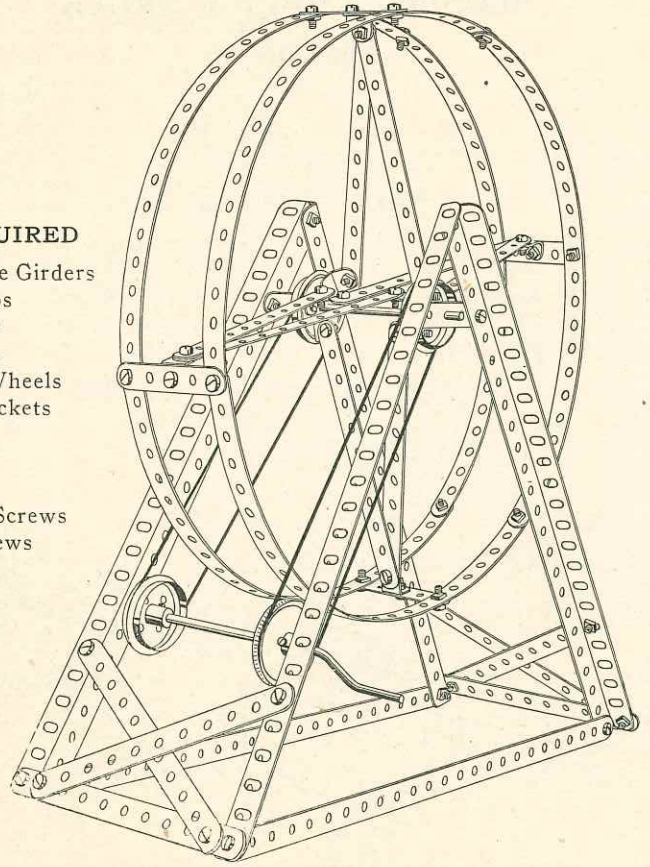
1—Large Plate
1—Small Plate
2—Sector Plates
1—Bush Wheel
4—Flanged Wheels
3—1″ Pulleys
5—Collars
4—12½″ Angle Girders
12—12½″ Strips
15—5½″ Strips
2—3½″ Strips
10—2½″ Strips
1—Single Bent Strip
1—2″ Axle Rod
2—3½″ Axle Rods
2—4½″ Axle Rods
1—5″ Axle Rod
1—5½″ Crank
20—Angle Brackets
60—Nuts and Screws



In constructing the **Oil Derrick** note that a Single Bent Strip is attached to the 5½″ Upright Strip at the point marked "A." The upper part of this Double Bent Strip supports the walking beam. The rope holding the plunger is fastened to the end of this walking beam so that this plunger works up and down with the movement of the beam.

All Models shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

REVOLVING WHEEL Fig. No. 67

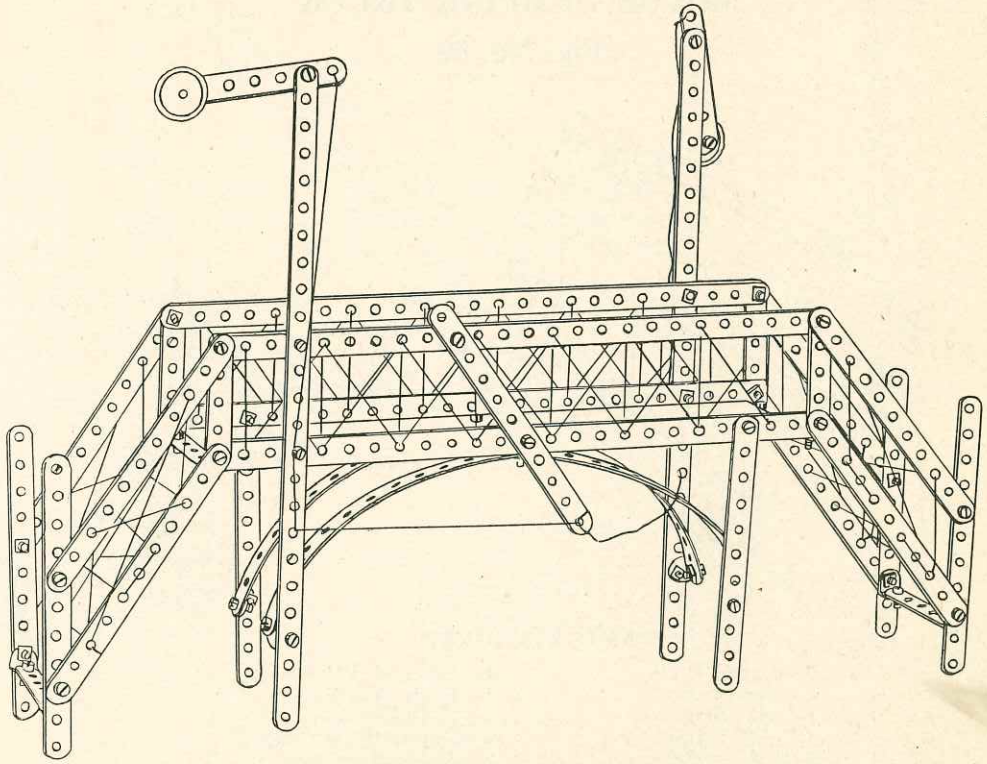


PARTS REQUIRED

4—12½" Angle Girders
8—12½" Strips
14—5½" Strips
6—2½" Strips
4—Flanged Wheels
16—Angle Brackets
2—5" Axles
1—1" Pulley
4—Collars
56—Nuts and Screws
4—Wood Screws

The Revolving Wheel makes a very interesting model when operated by a Motor. In order to do this, it is necessary to attach a 1" Pulley Wheel to the 5½" Crank and mount the model on a board by means of four Angle Brackets and Wood Screws. The Motor should then be belted direct to this 1" Pulley Wheel.

RAILWAY SIGNAL BRIDGE Fig. No. 68



PARTS REQUIRED

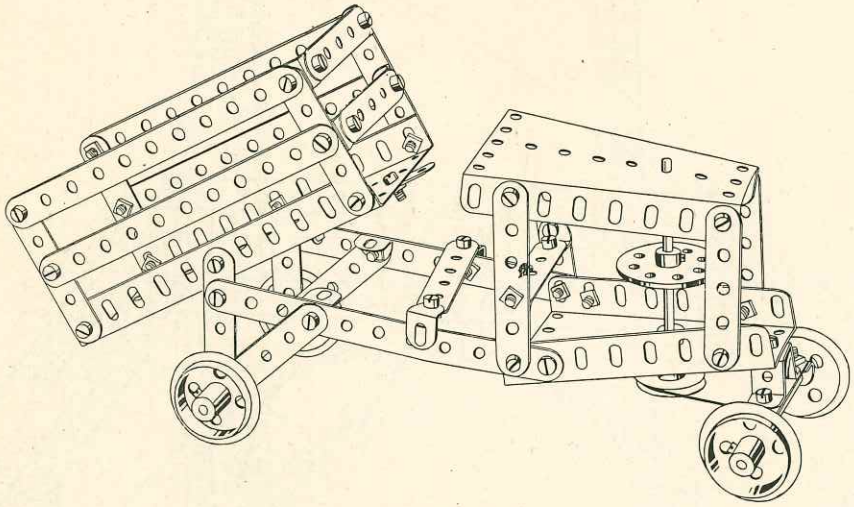
2—12½" Angle Girders
6—12½" Strips
15—5½" Strips
2—3½" Strips
8—2½" Strips
8—Angle Brackets
2—1" Pulleys
44—Nuts and Screws

The Railway Signal Bridge is a very interesting Model, and if properly constructed, the signals will raise and lower as the operating lever in the center is moved from side to side. When the lever is in a perpendicular position, both signals should drop. We will give no explanation as we want this as a test model.

All Models shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

MOTOR DUMPING TRUCK
Fig. No. 69



PARTS REQUIRED

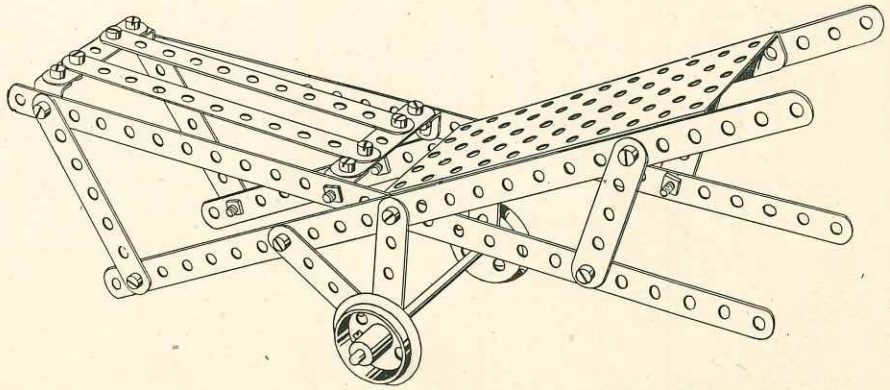
1—Large Plate	4—Flanged Wheels
2—Sector Plates	1—Bush Wheel
6—5½" Strips	1—1" Pulley
2—3½" Strips	1—Double Bent Strip
15—2½" Strips	12—Angle Brackets
3—4½" Axles	43—Nuts and Screws

The tilting end of the **Motor Dumping Truck** is held in position by means of the 2½" Strip bolted to the bottom of the Large Plate. By shifting the 2½" Strip forward, that is bolted in the back of the seat, it allows the rear end of the truck to tilt.

SLOPING BAGGAGE TRUCK
Fig. No. 70

PARTS REQUIRED

1—Large Plate	4—Angle Brackets
4—12½" Strips	1—4½" Axle
2—5½" Strips	2—Flanged Wheels
2—3½" Strips	22—Nuts and Screws
8—2½" Strips	



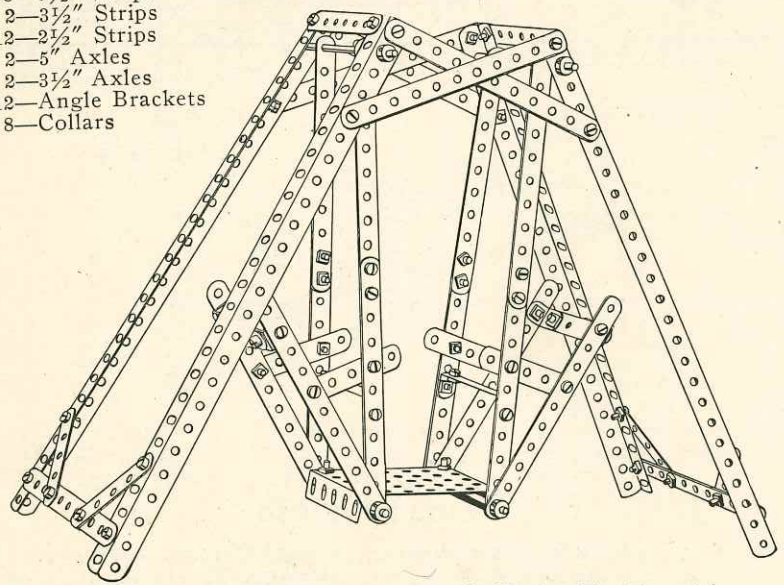
All Models shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

LAWN SWING
Fig. No. 71

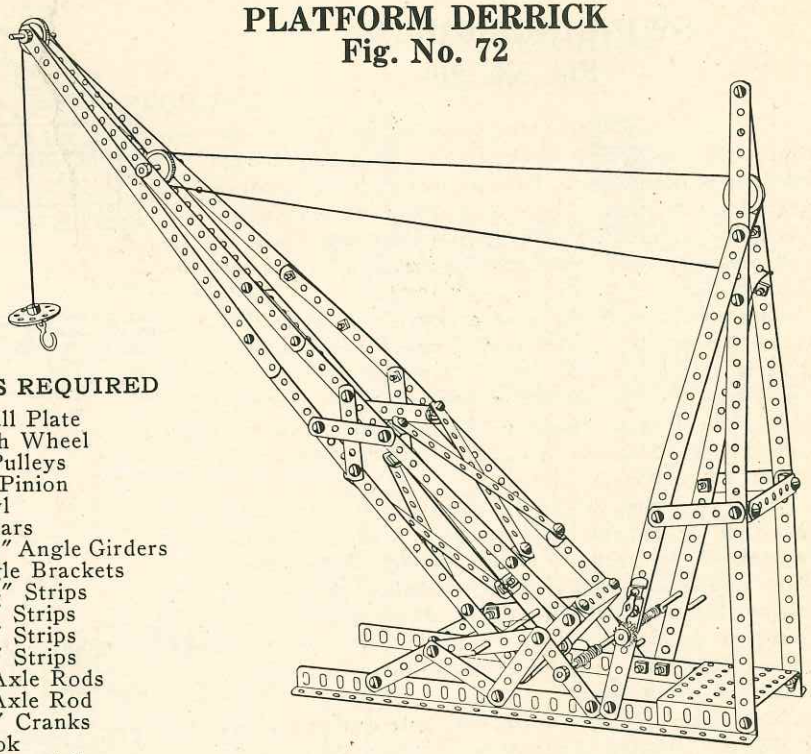
PARTS REQUIRED

4—12½″ Angle Girders
18—5½″ Strips
2—3½″ Strips
12—2½″ Strips
2—5″ Axles
2—3½″ Axles
12—Angle Brackets
8—Collars
1—Small Plate
60—Nuts and Screws



The Lawn Swing makes a very neat and effective Model, and is an exact duplicate of the Swing used during the summer months. Each side is made of two 12½″ Angle Girders, fastened at the top with a 3½″ Strip, and at the bottom with a 5½″ Strip. Two Collars should be fastened on the Axle Rods on the outside of the perpendicular strips supporting the Swing. These are to keep the Swing in the center of the frame and avoid striking the sides when moved backward and forward.

PLATFORM DERRICK
Fig. No. 72



PARTS REQUIRED

1—Small Plate
1—Bush Wheel
3—1″ Pulleys
1—½″ Pinion
1—Pawl
7—Collars
2—12½″ Angle Girders
14—Angle Brackets
12—12½″ Strips
6—5½″ Strips
3—3½″ Strips
18—2½″ Strips
3—2″ Axle Rods
1—5″ Axle Rod
2—5½″ Cranks
1—Hook
60—Nuts and Screws

The Platform Derrick needs no particular explanation as this is a very simple but effective Model when completed. The Boom swings on the 5″ Axle Rod which passes through the two 3½″ Strips. To this Axle Rod on the side of the 3½″ Strips should be fastened two Collars, so as to prevent the Boom from touching the sides of the frame when it is operated up and down.

The Platform Derrick completes the models that may be made with The American Model Builder Outfit No. 3. By purchasing Accessory Outfit No. 3½, Models Nos. 80 to 92, inclusive, can be made, which are shown on the following pages.
For price of separate parts and Accessory Outfits, see pages 79 and 80.
For special Motors and Countershaft for operating Models by Electricity, see pages 70 and 71.

All Models shown on this page can be made with The American Model Builder Outfit No. 3, or with No. 2 and No. 2½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

SWINGING BRIDGE
Fig. No. 80

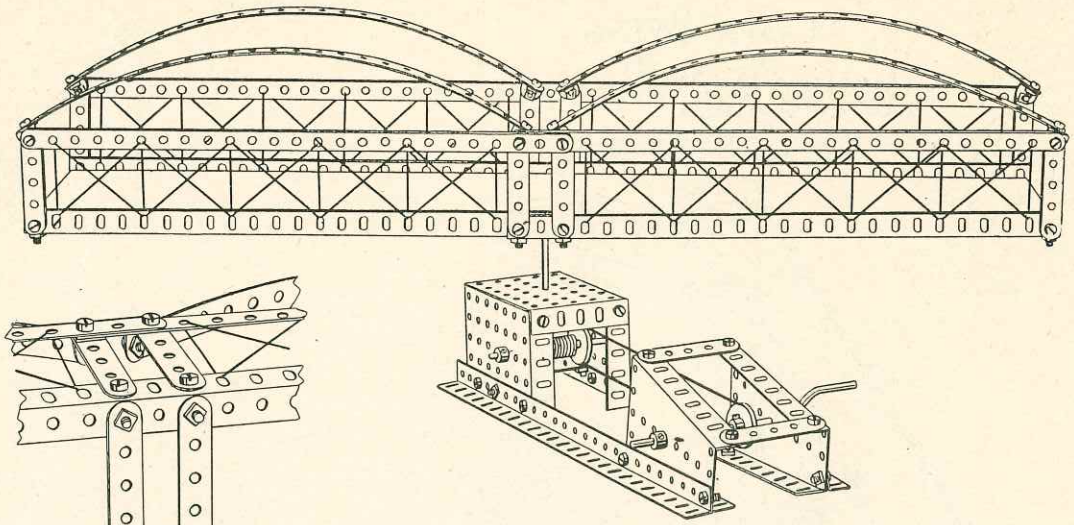
This is an excellent Model, which clearly demonstrates the mechanical workings of a **Swinging Bridge** where it is necessary to have a clear opening to allow large boats to pass. From an engineering standpoint, this model cannot be excelled and the builder will be well repaid for any time spent in the study of its mechanical parts.

The platform of the bridge should be made first. This is constructed of two 12½" Angle Girders fastened at each end with a 5½" Strip and reinforced with two 5½" Strips in the center, as shown in the sectional view. The sides are made of two 12½" Strips fastened together and joined at the ends and in the center to the upright 2½" Strips.

Next, construct the under frame which contains the operating mechanism. This is made of two 12½" Angle Girders, to one end of which are bolted two Small Plates and to the other two Sector Plates. A 2½" Strip should then be fastened to two Angle Brackets and bolted at the bottom in the fourth hole of the Small Plate. This forms the lower support for the Axle on which the bridge turns.

Next, insert the 4½" horizontal Axle Rod and attach to this a 1" Pulley and a Worm. Then fasten a ½" Pinion to the perpendicular 4½" Axle Rod, arranging the Pinion so it will mesh with the Worm. Then fasten a Small Plate on the top of the gear housing. When attaching the bridge to the 4½" upright Axle Rod, be sure and fasten the Set Screw in the Bush Wheel securely.

This model can be operated either by hand or with a small motor that is equipped with a reversinig mechanism.



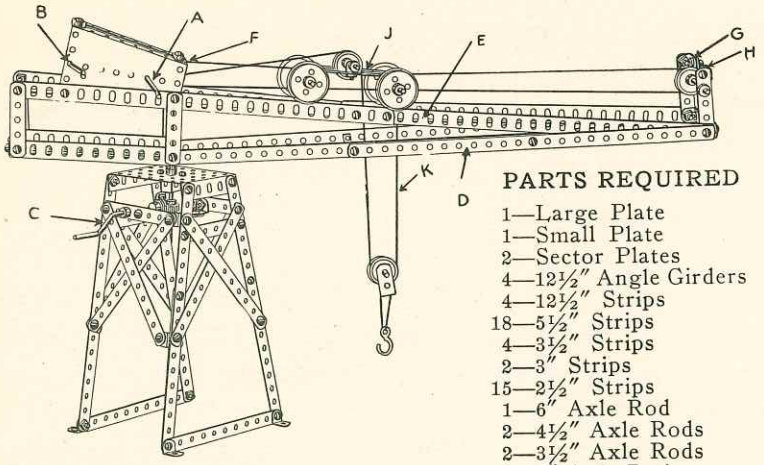
PARTS REQUIRED

6—12½" Angle Girders	1—5½" Crank
8—12½" Strips	4—Collars
4—5½" Strips	2—1" Pulleys
12—2½" Strips	1—½" Pinion
2—Sector Plates	1—Worm Wheel
3—Small Plates	1—Bush Wheel
10—Angle Brackets	56—Nuts and Screws
2—4½" Axle Rods	

The Model shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and No. 3½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

TITAN CRANE
Fig. No. 81



1—4½″ Crank
2—5½″ Cranks
4—Flanged Wheels
4—1″ Pulleys
1—Bush Wheel
1—Worm
1—½″ Pinion
10—Collars

PARTS REQUIRED

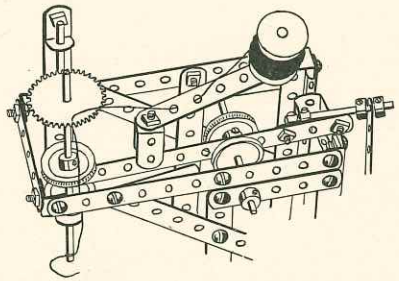
1—Large Plate
1—Small Plate
2—Sector Plates
4—12½″ Angle Girders
4—12½″ Strips
18—5½″ Strips
4—3½″ Strips
2—3″ Strips
15—2½″ Strips
1—6″ Axle Rod
2—4½″ Axle Rods
2—3½″ Axle Rods
1—2″ Axle Rod
2—Double Bent Strips
1—Single Bent Strip
1—Hook
24—Angle Brackets
80—Nuts and Screws

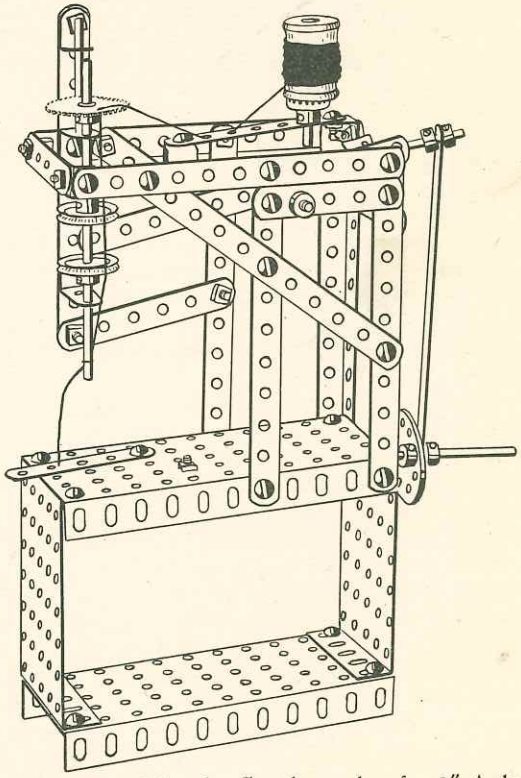
The Titan Crane is a very ingenious model and one which should be given considerable thought. Crank A operates the carriage back and forth, while Crank B raises and lowers the load. Crank C turns the frame by means of the Worm Wheel which meshes with the ½″ Pinion. D represents the two 12½″ Strips bolted together to form the overhanging Boom. E represents the two 12½″ Angle Girders on which the carriage operates. At point F, the two Sector Plates are held together by a 2½″ Strip and a Double Bent Strip is bolted to the bottom of this 2½″ Strip to form a bearing for the 6″ Axle Rod on which the Crane revolves. G and H represent two Angle Brackets attached to the upright 2½″ Strip, and to these Angle Brackets in the front are attached two 2½″ Strips to form a diagonal brace. J shows the upper part of the moving carriage, which is made of two 3½″ Strips, fastened together at each end with a 2½″ Strip. K is the hoisting cord, one end of which is fastened to the 2½″ Strip on the carriage, while the other end passes over the Pulley Wheels and is wound on Crank B.

SEWING MACHINE
Fig. No. 82

PARTS REQUIRED

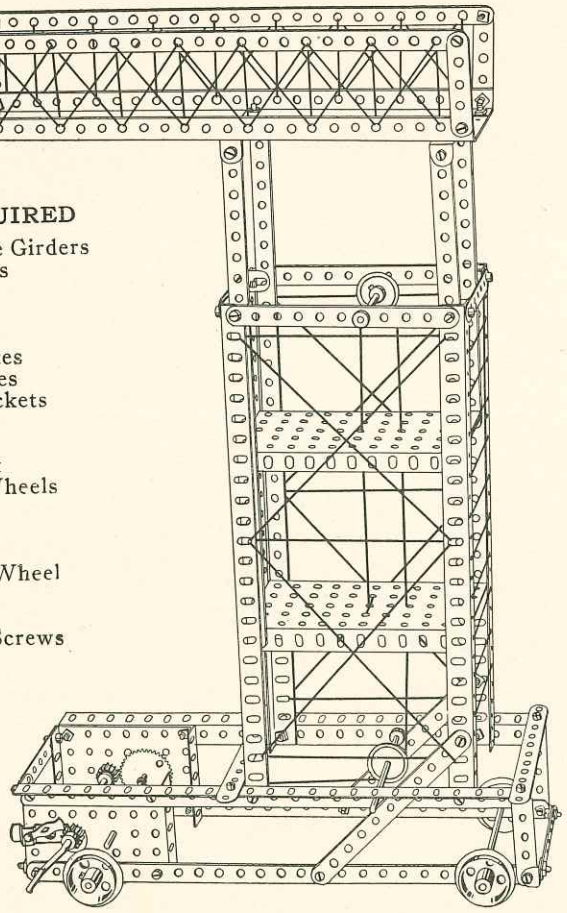
2—Large Plates
2—Small Plates
13—5½″ Strips
1—3½″ Strip
1—3″ Strip
5—2½″ Strips
1—Large Bent Strip
1—Double Bent Strip
1—Single Bent Strip
1—Bush Wheel
4—1″ Pulleys
1—1½″ Gear
1—¾″ Crown
4—2″ Axle Rods
1—3½ Axle Rod
2—5″ Axle Rods
9—Collars
7—Angle Brackets
46—Nuts and Screws





The Sewing Machine is operated by the Crank, made of a 2″ Axle Rod passing through the Bush Wheel at the right-hand side of the Model. This Bush Wheel is supported on a 5″ Axle Rod, which passes through the Small Plate and is attached to an Angle Bracket fastened on the lower side of the Large Plate. The detail of the upper construction is clearly shown in the small cut, which is a top view of the Model. When the Crank is turned, the needle arm works up and down and gives a most realistic appearance of a real Sewing Machine. You can try this in sewing brother's pants.

All Models shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and 3½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



PARTS REQUIRED

8—12½″ Angle Girders
8—12½″ Strips
6—5½″ Strips
5—3½″ Strips
8—2½″ Strips
2—Large Plates
2—Small Plates
10—Angle Brackets
2—5″ Axles
3—4½″ Axles
1—6½″ Crank
4—Flanged Wheels
2—1″ Pulleys
1—¾″ Pinion
1—½″ Pinion
1—1½″ Gear Wheel
1—Pawl
7—Collars
70—Nuts and Screws

TOWER TRUCK
Fig. No. 83

The Tower Truck is a very interesting and instructive Model, and can be seen in daily use by the Electric Railway Companies, in the repair of their overhead wiring. When the Model is properly constructed, by turning the Crank, the Bridge on the upper part of the Model can be lowered or raised.

In beginning this Model, first study the operations carefully in the accompanying cut. Begin by making the lower frame, which consists of two Angle Girders and two 12½″ Strips bolted to two Small Plates. Then join the Angle Girders together at the rear end with a 5½″ Strip and the two 12½″ Strips with a 3½″ Strip attached to two Angle Brackets.

Next construct the outside upright frame, which is made of four 12½″ Angle Girders bolted together at the top with two 5½″ Strips, and at the front and rear with two 3½″ Strips attached to Angle Brackets.

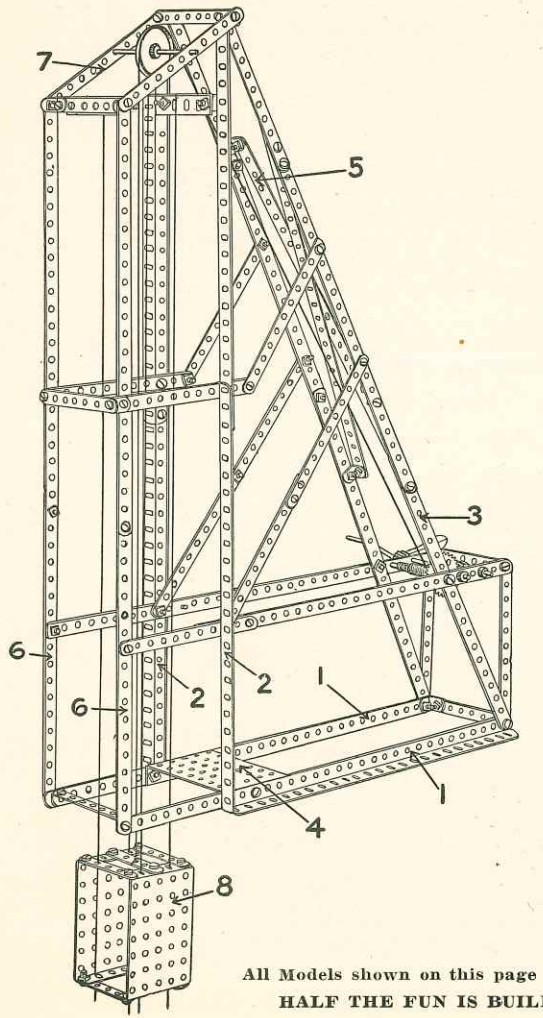
Next erect the inside upright or sliding frame by bolting four 12½″ Strips to two Large Plates. Then construct the upper bridge, which is made of two 12½″ Angle Girders and two 12½″ Strips fastened together at the ends with six 2½″ Strips. Then bolt the bridge fast to the four 12½″ upright Strips which form the sliding frame. After lacing in the string, slip the sliding frame into the main upright frame, and fasten four Angle Brackets on the inside of the 3½″ Strips, which will act as guides as the inside frame moves up and down.

The matter of attaching the Pulleys, Gears and Axles is very simpple and needs no particular instructions.

The Model shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and No. 3½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

PIT HEADGEAR
Fig. No. 84



PARTS REQUIRED

6—12½" Angle Girders
12—12½" Strips
18—5½" Strips
6—3½" Strips
5—2½" Strips
4—Small Plates
1—1½" Pulley
1—1½" Gear Wheel
1—¾" Pinion
1—½" Pinion
1—Pawl
1—6½" Crank
2—4½" Axles
20—Angle Brackets
5—Collars
80—Nuts and Screws

The Pit Headgear is a very ingenious Model and shows the principle upon which ore is raised from a good many western mines.

The lower frame is made of two 12½" Angle Girders (1), held together by Small Plate (4), and to these are bolted two 12½" upright Angle Girders (2) overlapped three holes, and fastened at the top by a 3½" Strip. Then attach the diagonal braces (3), made of two 12½" and one 5½" Strips, and between these should be attached two diagonal 12½" Strips (5) attached to Angle Brackets.

Next construct the frame work in which the cage moves. This is made of two 12½" Strips overlapped eight holes and fastened at the top to Angle Brackets bolted to a Small Plate. Then attach the two diagonal Strips (7) which form the bearing for the upper Pulley Shaft.

The rest of the bracing is simple and can be easily followed from the cut.

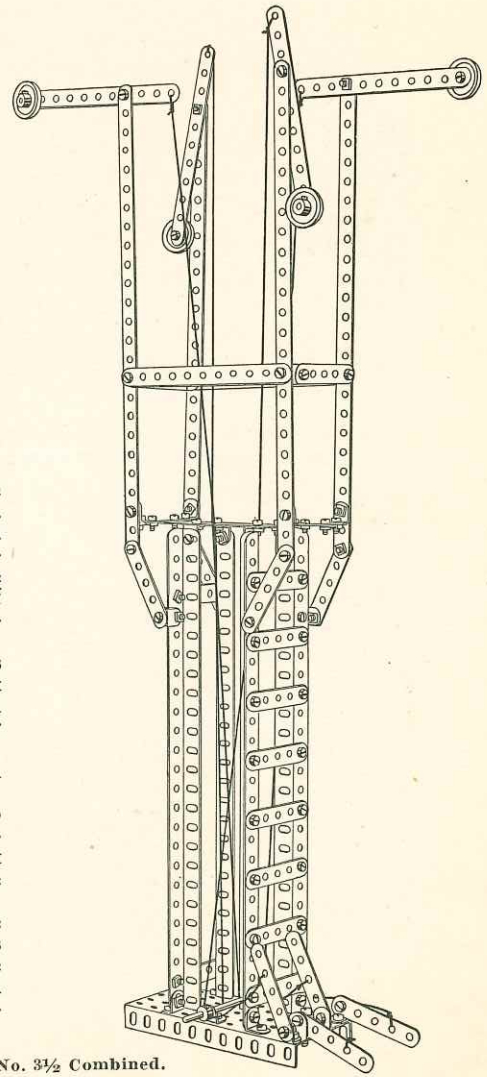
The cage is made of two Small Plates (8) fastened at the top and bottom with six 2½" Strips. The gearing is of the usual construction, a ½" Pinion being attached on the outside of the Crank which engages the Pawl and a ¾" Pinion mounted on the inside which meshes with the 1½" Gear attached to an Axle Rod.

Note there are four guide ropes attached to the upper plate which pass through the holes in the cage. When completed, this Model should be set on a table and the frame work carrying the cage extended over the edge of it. The four guide ropes should then be fastened to the floor, and tightly stretched, as these prevent the cage from turning when moving up or down.

R. R. TOWER SIGNAL
Fig. No. 85

PARTS REQUIRED

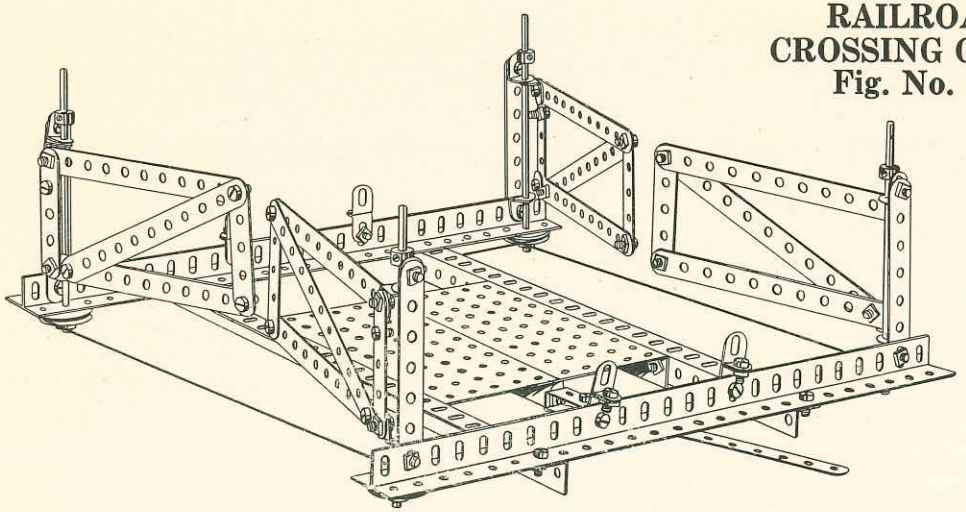
4—12½" Angle Girders
4—12½" Strips
8—5½" Strips
20—2½" Strips
1—Large Plate
1—4½" Axle Rod
4—1" Pulleys
2—Collars
20—Angle Brackets
80—Nuts and Screws



All Models shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and No. 3½ Combined.

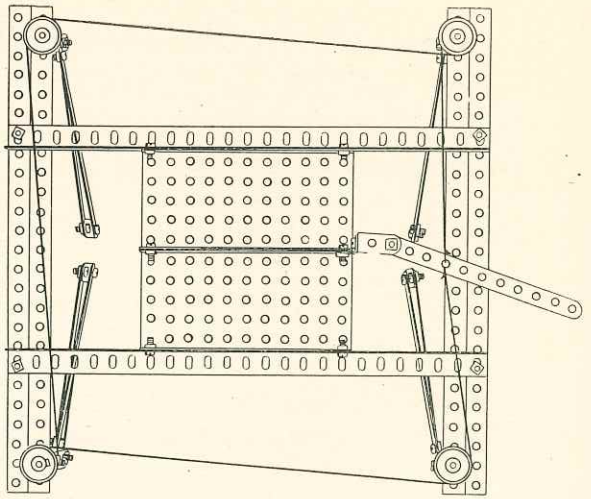
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

RAILROAD CROSSING GATES Fig. No. 86



PARTS REQUIRED

6—12½″ Angle Girders
13—5½″ Strips
4—3½″ Strips
8—2½″ Strips
25—Angle Brackets
1—Single Bent Strip
4—1″ Pulleys
4—5″ Axles
2—Large Plates
4—Collars
53—Nuts and Screws



The Railroad Crossing Gates should be constructed with considerable care as all the parts must operate simultaneously in order to have all four gates open and close by the operation of the lever.

The construction of the base is very simple, and this is made of two Large Plates fastened together and bolted fast to two 12½″ Angle Girders.

Next, construct the frame work which supports the swinging gates. This is accomplished by fastening two 12½″ Angle Girders together with a 3½″ Strip inserted between them and bolted in the second hole from each end of the Angle Girders. These Angle Girders are then bolted fast to the Angle Girders which form the base. The construction of the gates is very simple as these are made up of two 5½″ Strips fastened together at the ends with a 2½″ Strip and a 5½″ Strip running diagonally from the top of the gate at one end to the bottom at the other.

The matter of hinging these gates is accomplished by fastening an Angle Bracket at the top and bottom on the inside of each gate, and also having an Angle Bracket fastened at the top and bottom of the 3½″ Strip used as an upright.

Next fasten a 1″ Pulley Wheel to one end of the 5″ Axle Rods, securely fastening the Set Screw to prevent the Pulley Wheel from turning. Then pass these axles through the second hole of the Angle Girder, at the same time passing it through the Angle Brackets which are attached to the 3½″ upright strip and to the inside of the gates.

In order to make the gates move when this axle is being turned, it is necessary to have a screw placed in the second hole from the bottom of these gates and screwed up tightly so that the end comes in contact with the Axle Rod.

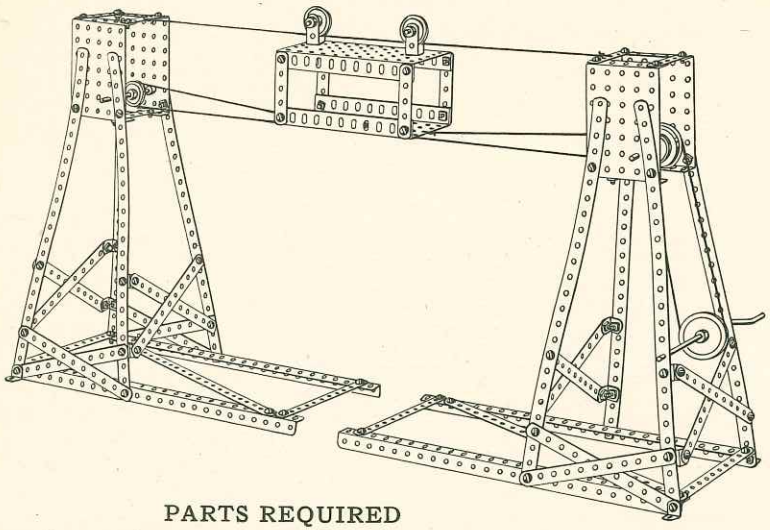
In the inverted view, we show the arrangement of the operating cord, and you will note that this cord is wound in opposite directions around every other pulley. This is done so as to have the two gates move in opposite directions at the same time. It is desirable to wind the operating cord twice around each pulley in order to give it a better grip.

When this model is properly constructed, it operates very easily, and by throwing the lever to one side all the gates will open simultaneously, and by throwing the lever back all the gates will close simultaneously.

The Model shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and No. 3½ Combined.

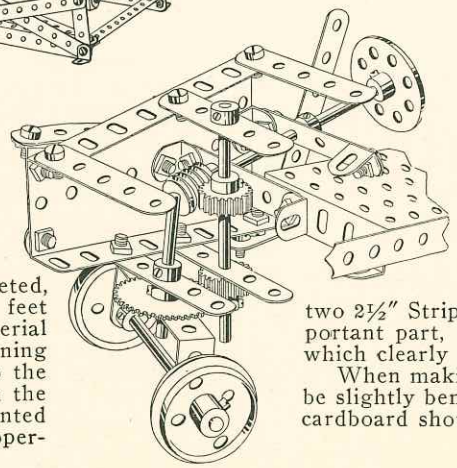
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

CONVEYOR
Fig. No. 87



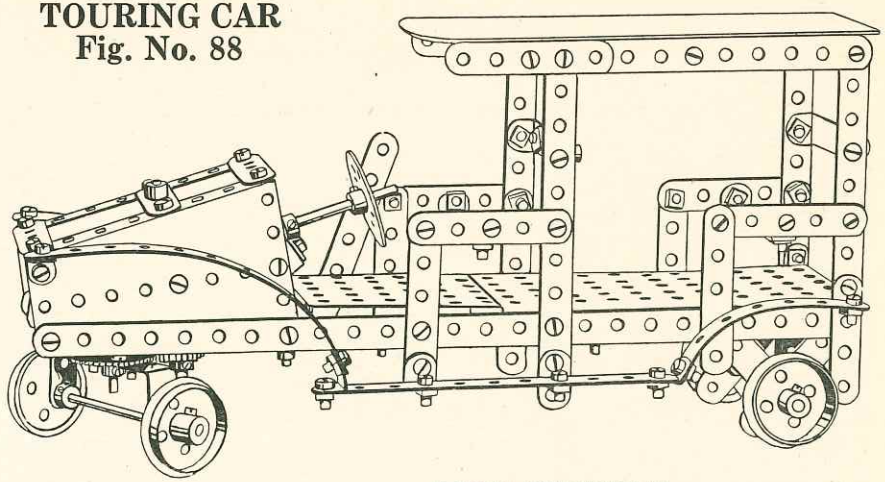
PARTS REQUIRED

2—Large Plates	2—3½″ Axle Rods
4—Small Plates	2—2″ Axle Rods
4—12½″ Angle Girders	1—1½″ Pulley
10—12½″ Strips	4—1″ Pulleys
20—5½″ Strips	1—Flanged Wheel
10—2½″ Strips	10—Collars
2—Single Bent Strips	20—Angle Brackets
1—6½″ Crank	80—Nuts and Screws



The Conveyor is a very rigid Model when completed, and the two uprights should be separated from 6 to 8 feet and each upright securely fastened to a board. The Aerial Car can then be operated back and forth by simply turning the Crank. Note that the 1½″ Pulley, as attached to the Crank, is belted to a Flanged and Grooved Wheel on the upper 3½″ Axle Rod. On this same Axle Rod is mounted a 1″ Pulley Wheel, over which the cord passes and operates the car back and forth.

TOURING CAR
Fig. No. 88



PARTS REQUIRED

1—Large Plate	20—2½″ Strips	1—Gear Wheel
1—Small Plate	3—4½″ Axles	4—Flanged Wheels
2—Sector Plates	1—3½″ Axle	8—Collars
2—12½″ Strips	1—2″ Axle	1—Large Bent Strip
10—5½″ Strips	1—Bush Wheel	30—Angle Brackets
3—3½″ Strips	1—Worm Wheel	80—Nuts and Screws
2—3″ Strips	2—¾″ Pinions	

The Touring Car is a very clever little Model and clearly demonstrates the gearing for controlling an Automobile.

Begin this model by making the base frame which is made of one Large and one Small Plate, to the sides of which are bolted two 12½″ Strips, and at the front end two Sector Plates to form the hood. These Sector Plates are fastened together at the top by three 2½″ Strips and at the bottom by two 2½″ Strips, as shown in the sectional cut. The gearing is the most important part, and for this reason we have shown a detached sectional cut which clearly shows how this is put together.

When making the front and rear fenders, the 5½″ and 3½″ Strips should be slightly bent over the fingers in order to give the proper curve. A heavy cardboard should be cut and fastened to the top for a hood.

All Models shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and 3½ Combined.

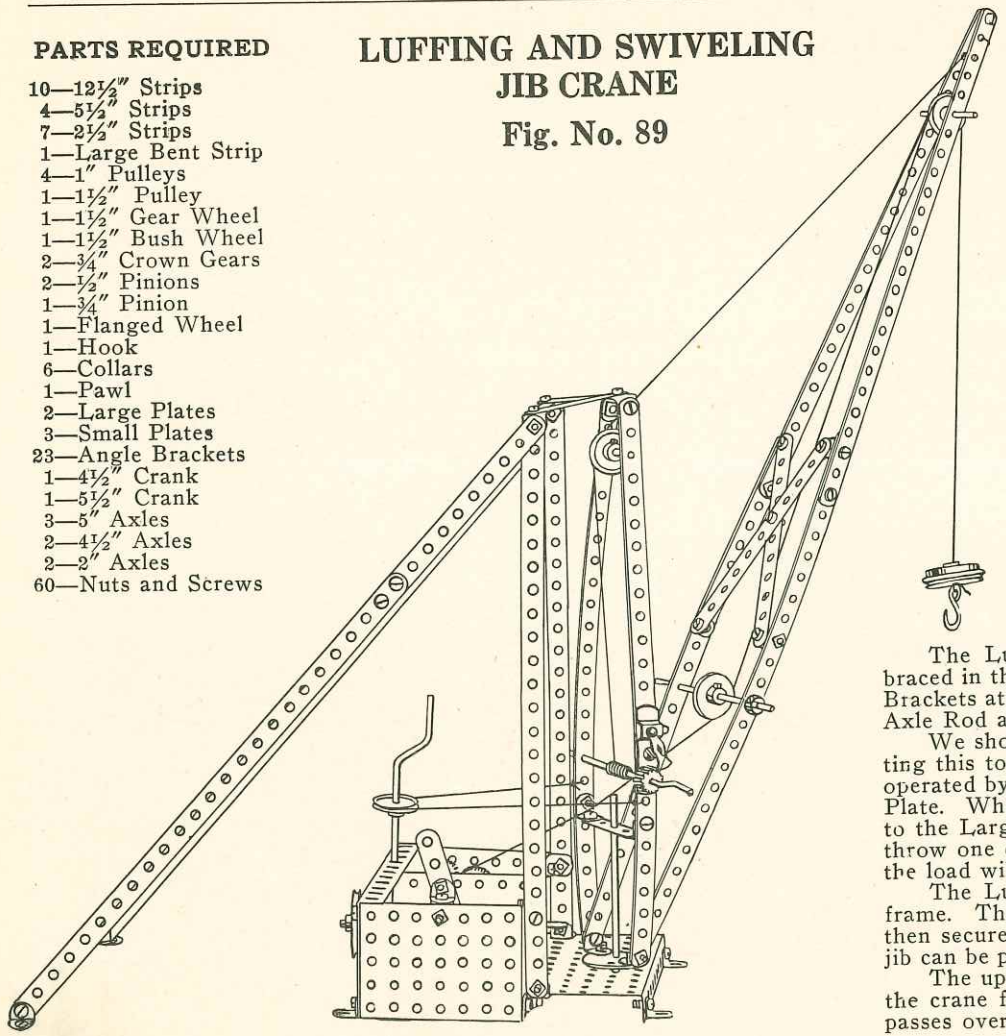
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

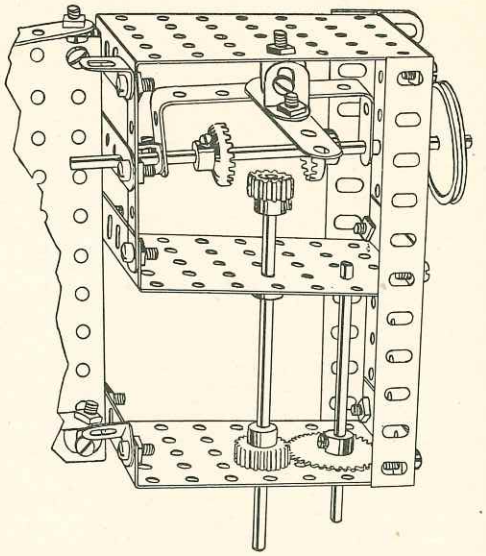
LUFFING AND SWIVELING JIB CRANE

Fig. No. 89

PARTS REQUIRED

10—12½″ Strips
4—5½″ Strips
7—2½″ Strips
1—Large Bent Strip
4—1″ Pulleys
1—1½″ Pulley
1—1½″ Gear Wheel
1—1½″ Bush Wheel
2—¾″ Crown Gears
2—½″ Pinions
1—¾″ Pinion
1—Flanged Wheel
1—Hook
6—Collars
1—Pawl
2—Large Plates
3—Small Plates
23—Angle Brackets
1—4½″ Crank
1—5½″ Crank
3—5″ Axles
2—4½″ Axles
2—2″ Axles
60—Nuts and Screws





The Luffing and Swiveling Jib Crane demonstrates the apparatus which is most commonly used at the docks in transporting freight to and from the large vessels.

The apparatus consists of two frames, the back one being stationary and securely fastened to the housing containing the gearing, the front part forming the Luffing and Swiveling Jib.

The construction of the stationary frame is very simple, and also the upright swiveling frame which is made of two 12½″ Strips and fastened at the bottom to two Angle Brackets which are attached to the Bush Wheel and fastened at the top by two Angle Brackets.

The Luffing Jib is constructed of four 12½″ Strips fastened together and braced in the center. The lower portion of this frame is then bolted to the Angle Brackets attached to the Bush Wheel. In the thirteenth hole from the bottom the Axle Rod and 1″ Pulley Wheel should be fastened.

We show a sectional view of the gearing and no difficulty should arise in putting this together. The driving shaft of this model is so designed that it can be operated by a small motor belted to the Pulley Wheel on the outside of the Large Plate. When it is desired to raise or lower the load the operating lever attached to the Large Bent Strip should be shifted from one side to the other. This will throw one or the other of the ¾″ Crown Gears in mesh with the ½″ Pinion and the load will be raised or lowered.

The Luffing Jib is operated by the crank fastened in the upright swiveling frame. This cord passes over the Pulley Wheel in the top of the frame and is then securely fastened to the top of the Luffing Jib. By operating this crank the jib can be put at any angle from a nearly horizontal to a nearly vertical position.

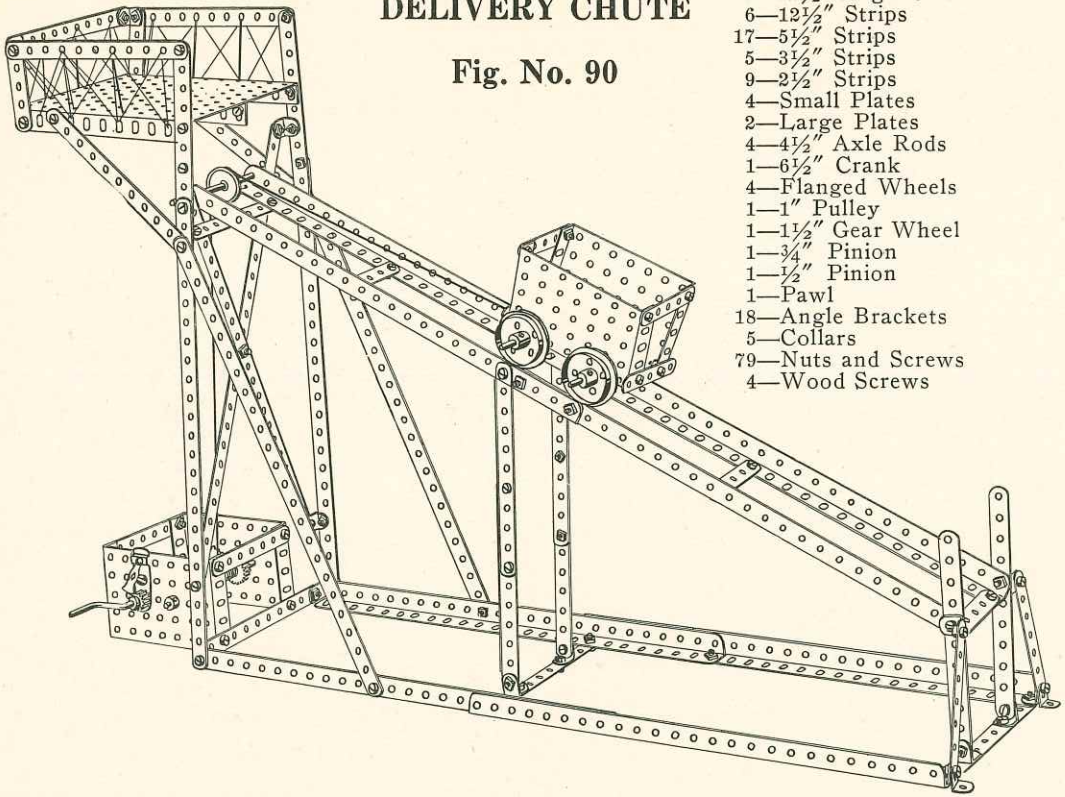
The upright crank fastened in the Large Plate is for the purpose of swinging the crane from one side to the other. This is accomplished by the cord which passes over the Pulley Wheel and is fastened to each side of the swiveling frame.

The Model shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and No. 3½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

INCLINED DELIVERY CHUTE

Fig. No. 90



PARTS REQUIRED

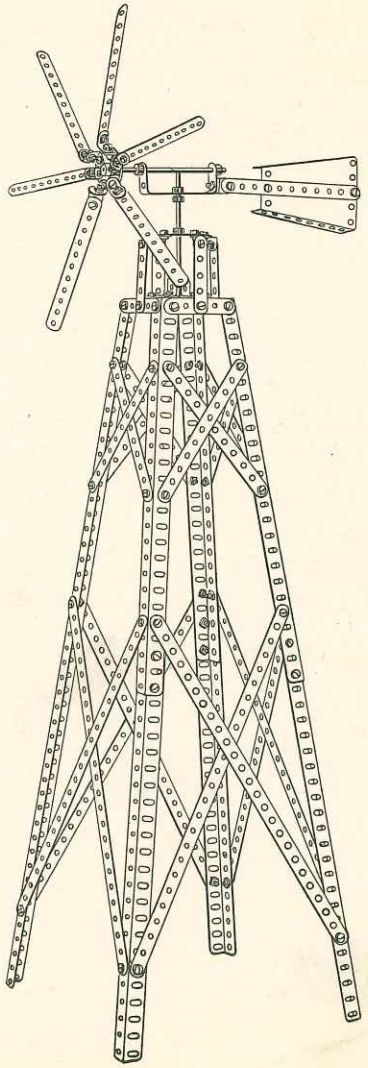
8—12½" Angle Girders
6—12½" Strips
17—5½" Strips
5—3½" Strips
9—2½" Strips
4—Small Plates
2—Large Plates
4—4½" Axle Rods
1—6½" Crank
4—Flanged Wheels
1—1" Pulley
1—1½" Gear Wheel
1—¾" Pinion
1—½" Pinion
1—Pawl
18—Angle Brackets
5—Collars
79—Nuts and Screws
4—Wood Screws

The Inclined Delivery Chute illustrates the principle of delivering goods from a low point to a higher elevation, and when completed makes a very attractive and ingenious Model. The construction of the frame work is very simple, and can be very easily followed from the cut. The gearing is of the usual type, having an 1½" Gear attached to the Crank, and this meshes with the ¾" Pinion on the Axle Rod.

Before beginning to operate this Model, same should be attached to a board by means of Angle Brackets and Wood Screws.

WIND PUMP

Fig. No. 91



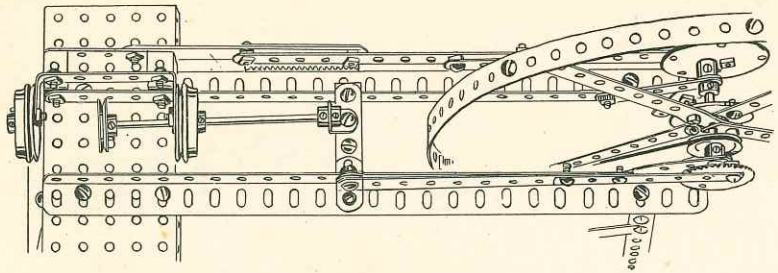
PARTS REQUIRED

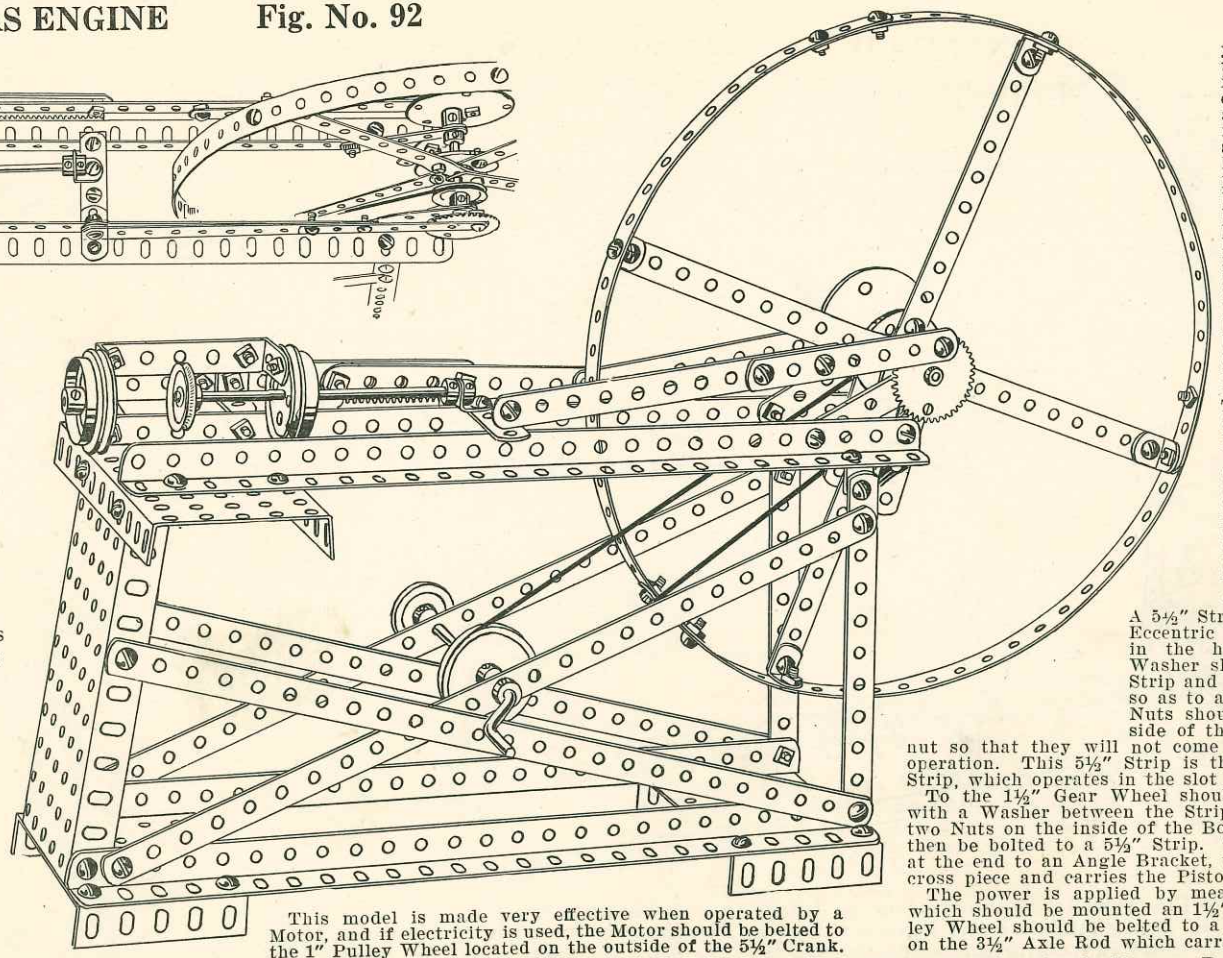
8—12½" Angle Girders
8—12½" Strips
15—5½" Strips
11—2½" Strips
1—5" Axle
1—4½" Axle
1—Sector Plate
1—Bush Wheel
5—Collars
1—Double Bent Strip
1—Large Bent Strip
23—Angle Brackets
80—Nuts and Screws

All Models shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and No. 3½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

GAS ENGINE Fig. No. 92





PARTS REQUIRED

2—Flanged Wheels
1—1½" Pulley
3—1" Pulleys
1—Bush Wheel
1—1½" Gear
5—Collars
7—12½" Strips
9—5½" Strips
6—2½" Strips
4—12½" Angle Girders
2—Double Bent Strips
1—Large Bent Strip
2—Large Plates
2—Small Plates
1—4½" Axle Rod
1—2" Axle Rod
1—5½" Crank
1—Oscillating Rack
1—Eccentric Wheel
8—Angle Brackets
76—Nuts and Screws

This model is made very effective when operated by a Motor, and if electricity is used, the Motor should be belted to the 1" Pulley Wheel located on the outside of the 5½" Crank.

The Gas Engine is beyond a doubt the most interesting small model that is shown in the book and every boy should be sure and build this. This model clearly demonstrates the working of the Piston and shows how the power is transmitted from the Fly Wheel to the Piston. The construction of this model is comparatively simple and the lower frame work needs no particular explanation. The Fly Wheel is made of three 12½" Strips which are bolted to four 5½" Strips by means of Angle Brackets, and these are fastened in the center with four Bolts to the Bush Wheel. This Bush Wheel is mounted on a 3½" Axle Rod. Be sure and have the Wheel set perfectly in the center, so that it will operate freely. On the left side of this 3½" Axle Rod is attached an Eccentric Drive Wheel, and on the right-hand side a 1½" Gear Wheel. These two Wheels are used in driving the Piston back and forth. A 5½" Strip should be bolted to this Eccentric Drive Wheel and fastened in the hole nearest the hub. A Washer should be used between the Strip and the Eccentric Drive Wheel, so as to avoid any friction, and two Nuts should be fastened on the inside of the Bolt, which form a lock nut so that they will not come off when the model is in operation. This 5½" Strip is then bolted to another 5½" Strip, which operates in the slot of the Oscillating Rack.

To the 1½" Gear Wheel should be bolted a 3½" Strip, with a Washer between the Strip and the Gear Wheel and two Nuts on the inside of the Bolt. This 3½" Strip should then be bolted to a 5½" Strip. This 5½" Strip is fastened at the end to an Angle Bracket, which is attached to a 2½" cross piece and carries the Piston back and forth.

The power is applied by means of the 5½" Crank, on which should be mounted an 1½" Pulley Wheel. This Pulley Wheel should be belted to a 1" Pulley Wheel, mounted on the 3½" Axle Rod which carries the Fly Wheel.

The Gas Engine completes the models that may be made with The American Model Builder Outfit No. 4. By purchasing Accessory Outfit No. 4½, 8 additional Models can be made, some of which are shown on the following pages.

For price of separate parts and Accessory Outfits, see pages 29 and 29.
For special Motors and Countershaft for operating Models by Electricity, see pages 26 and 27.

The Model shown on this page can be made with The American Model Builder Outfit No. 4, or with No. 3 and 3½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

AERIAL SWING

Fig. No. 100

PARTS REQUIRED

4—12½" Angle Girders
8—12½" Strips
5—5½" Strips
2—3½" Strips
18—2½" Strips
1—Double Bent Strip
14—Angle Brackets
3—Small Plates
2—Large Plates
1—Bush Wheel
1—Flanged Wheel
1—1½" Gear
1—1½" Crown Gear
2—¾" Pinions
1—5½" Crank
2—11½" Axles
6—Collars
4—Wood Screws
74—Nuts and Screws

Every boy has taken a ride on an **Aerial Swing**, and the building of one will be extremely interesting.

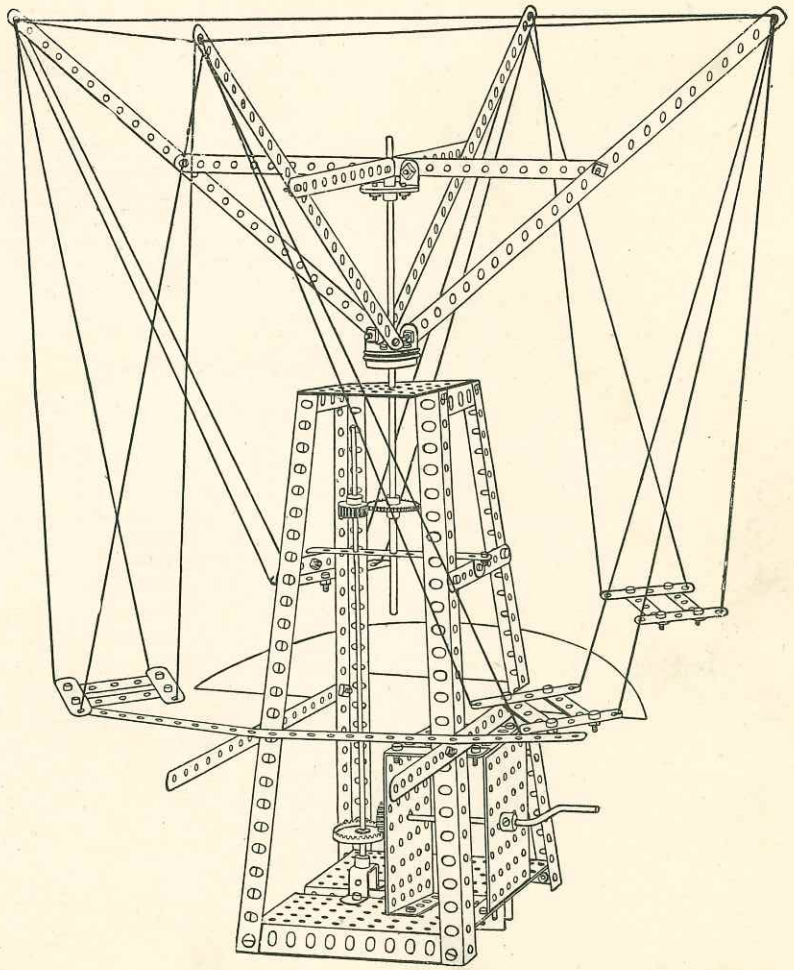
The main supporting frame is made of two Large Plates to which are bolted four upright Angle Girders fastened at the top to the Small Plate. The crank to to which the ¾" Pinion is attached is supported by two Small Plates bolted fast to the two Large Plates forming the base and fastened together at the top with two 2½" Strips. The two 12½" Strips are then bolted in the tenth hole from the bottom to the Angle Girders and two 12½" Strips are fastened to these by Angle Brackets. This forms the frame work which carries the platform. The platform is made from heavy cardboard cut in a circle and should be 14 inches in diameter. In the cut we show only one-half of this platform so that the gearing could be clearly photographed.

The arms carrying the swings are made of four 12½" Strips bolted at one end to Angle Brackets which are fastened to a Flanged Wheel, and these are held in position by four 5½" Strips which are bolted to Angle Brackets fastened to the Bush Wheel.

The gearing is very simple and is accomplished by a 1½" Gear attached to the 11½" Axle Rod carrying the revolving top. The lower 11½" perpendicular Axle Rod has a ¾" Pinion Wheel fastened at the top and a 1½" Crown Gear at the bottom which meshes with the ¾" Pinion Wheel attached to the Crank. A small Collar should be attached to the Axle Rod carrying the revolving frame which should rest on the 5½" cross strip. A small Collar should also be attached to the perpendicular Axle Rod beneath the Crown Gear which will rest on the Double Bent Strip. Two Collars should also be attached to the Crank on the outside of the Small Plates to prevent any lost motion.

If it is desired, this Model can be operated by a small motor, in which case a Pulley Wheel should be attached to the Crank on the inside of the two Small Plates.

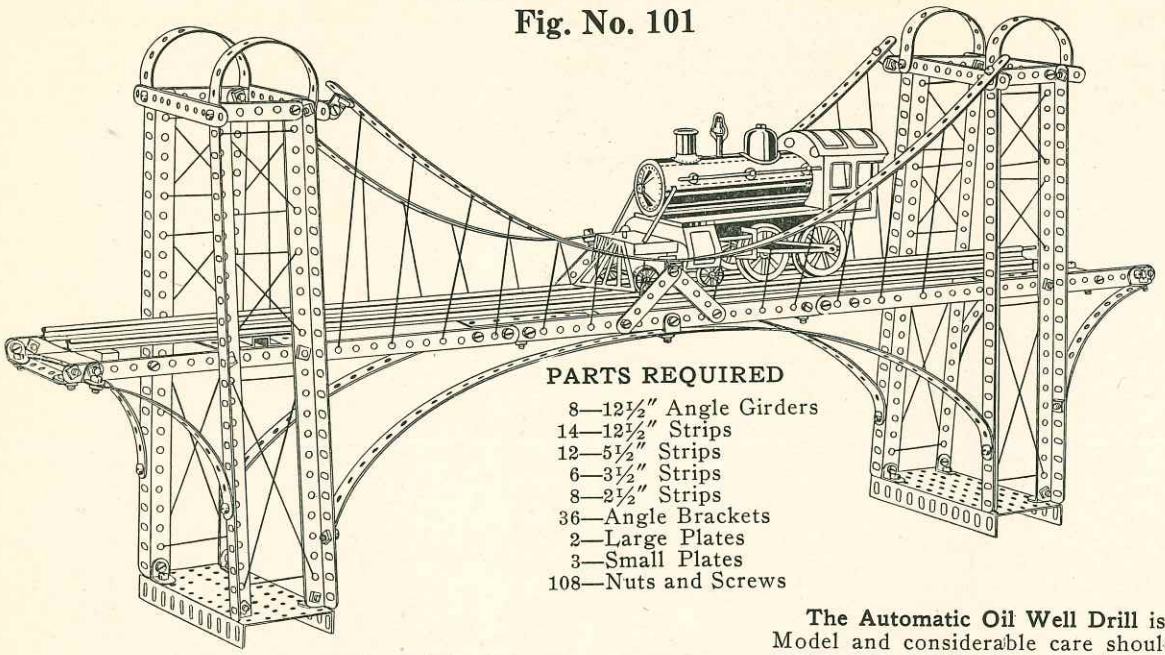
This is a very interesting Model and should afford untold pleasure to the boy after it is built.



The Model shown on this page can be made with The American Model Builder Outfit No. 5, or with No. 4 and No. 4½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

SUSPENSION BRIDGE
Fig. No. 101



PARTS REQUIRED

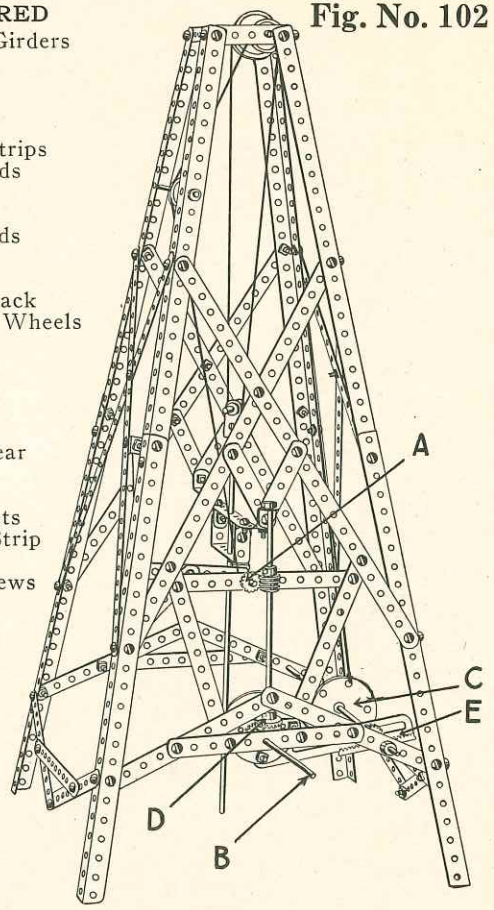
8—12½" Angle Girders
14—12½" Strips
12—5½" Strips
6—3½" Strips
8—2½" Strips
36—Angle Brackets
2—Large Plates
3—Small Plates
108—Nuts and Screws

In building the **Suspension Bridge** the towers are made first and are constructed of four 12½" Angle Girders fastened at the bottom to a Large Plate and fastened together at the top with a 2½" Strip. Two 5½" Strips are then bent in circular form and bolted fast to the top of these Angle Girders. These two towers are then fastened together with three 12½" Strips all bolted together. These should be fastened in the thirteenth hole from the bottom of the Angle Girders. Between these strips on the inside of the towers is fastened a Small Plate, and a Small Plate is also fastened in the center of these strips. To these should be bolted the track on which the engine runs. The engine and the track in this cut are simply for illustration and are not included in the regular outfit.

AUTOMATIC OIL WELL DRILL
Fig. No. 102

PARTS REQUIRED

8—12½" Angle Girders
8—12½" Strips
18—5½" Strips
1—3½" Strip
9—2½" Strips
2—Large Bent Strips
2—11½ Axle Rods
1—6" Axle Rod
1—5" Axle Rod
2—3½" Axle Rods
1—2" Axle Rod
1—4½" Crank
1—Oscillating Rack
2—Eccen. Drive Wheels
1—¾" Pinion
2—½" Pinions
1—1½" Pulley
2—1" Pulleys
1—½" Pulley
1—¾" Crown Gear
1—Worm
10—Collars
9—Angle Brackets
1—Single Bent Strip
2—Washers
82—Nuts and Screws

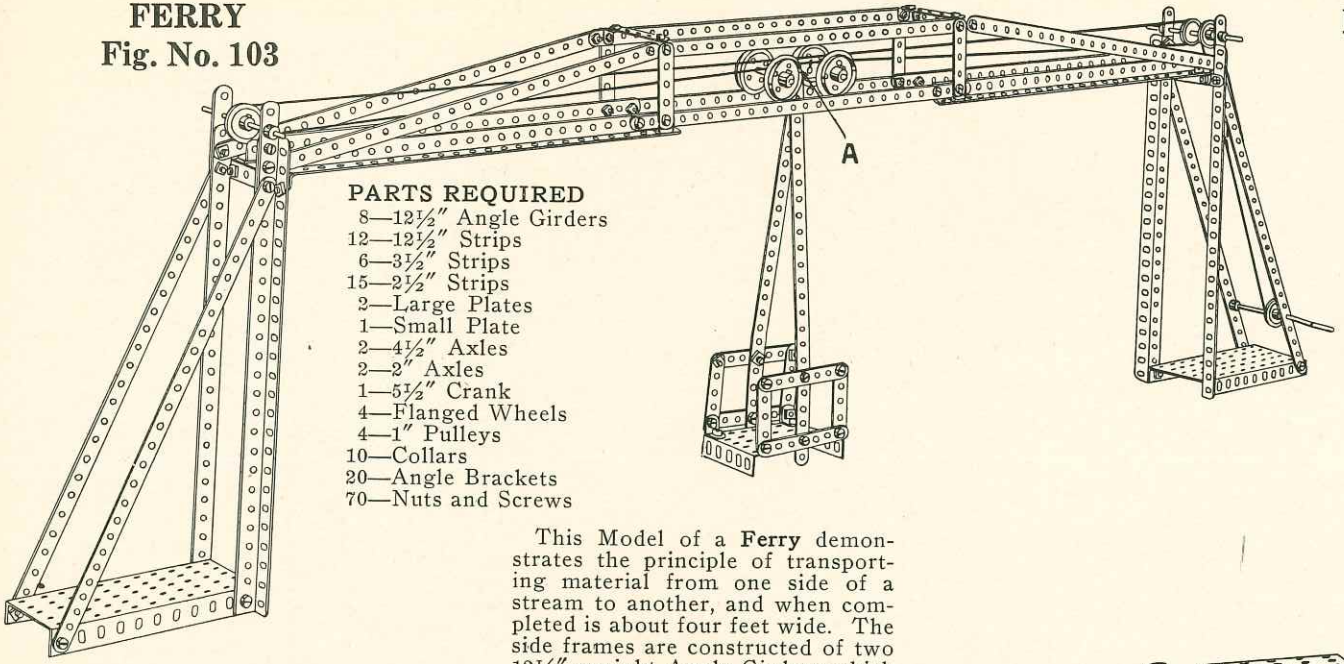


The Automatic Oil Well Drill is a very effective Model and considerable care should be used in its construction. The framework can be easily built from the drawing itself. The Cord which operates the Plunger is fastened to the Eccentric Drive Wheel "C," then passes over the 1½" Pulley Wheel at the top, then down over the ½" Pulley Wheel at the top of the Plunger, then over the 1" Pulley Wheel at the top, then over the 1" Pulley Wheel attached to the upper side of the frame, then fastened to the 3½" Axle Rod, to the end of which is attached a ½" Pinion marked "A." "B" is the Oscillating Rack, which is attached to the Eccentric Drive Wheel at the end of the 4½" Crank "D" and meshes with the ½" Pinion Wheel mounted on to the 11½" Axle Rod. "D" is the ¾" Crown Gear attached to the bottom of the 6" Axle Rod and meshes with the ¾" Pinion mounted on the 4½" Crank. When the Crank is turned, the Plunger will move up and down automatically and at the same time, the string operating this Plunger will lengthen automatically.

All Models shown on this page can be made with The American Model Builder Outfit No. 5, or with No. 4 and No. 4½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

FERRY
Fig. No. 103



PARTS REQUIRED

8—12½″ Angle Girders
12—12½″ Strips
6—3½″ Strips
15—2½″ Strips
2—Large Plates
1—Small Plate
2—4½″ Axles
2—2″ Axles
1—5½″ Crank
4—Flanged Wheels
4—1″ Pulleys
10—Collars
20—Angle Brackets
70—Nuts and Screws

This Model of a **Ferry** demonstrates the principle of transporting material from one side of a stream to another, and when completed is about four feet wide. The side frames are constructed of two 12½″ upright Angle Girders which are braced by two 12½″ Strips, all of which are bolted to the Large Plate at the bottom. The carrying frame is made of two 12½″ Angle Girders and one 12½″ Strip bolted together. These are made in pairs, and form the track on which the carriage runs. The upright bracing for the carrying track is made of six 12½″ Strips, fastened together with six 2½″ Strips, as shown in the cut. In attaching the 2½″ upright Strips to the 12½″ Angle Girders, which form the track, Angle Brackets should be used at the bottom so as to give sufficient clearance for the wheels as they move back and forth.

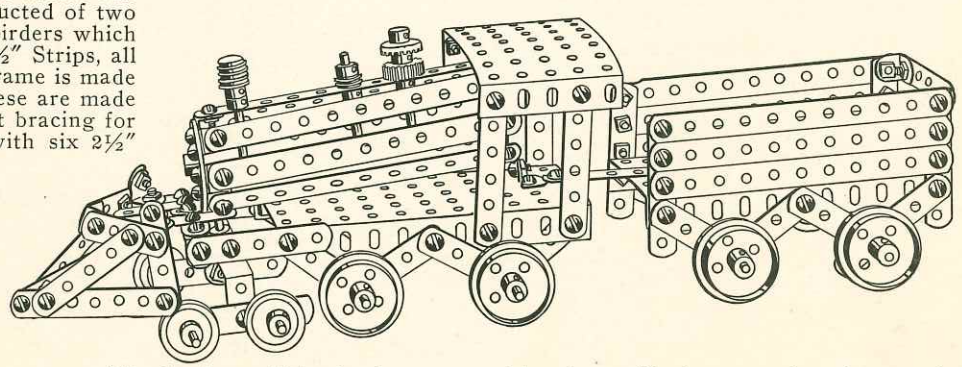
The construction of the carriage is simple, and needs no particular explanation. The Flanged Wheels are mounted on a 2″ Axle and fastened together with a 2½″ Strip, with a Collar on either side so as to keep it in the center of the Axles. To this strip should be bolted the upright 12½″ Strips at point marked "A" in the cut.

This Model should be fastened to a board by means of eight Angle Brackets before attempting to operate same.

ENGINE AND TENDER
Fig. No. 104

PARTS REQUIRED

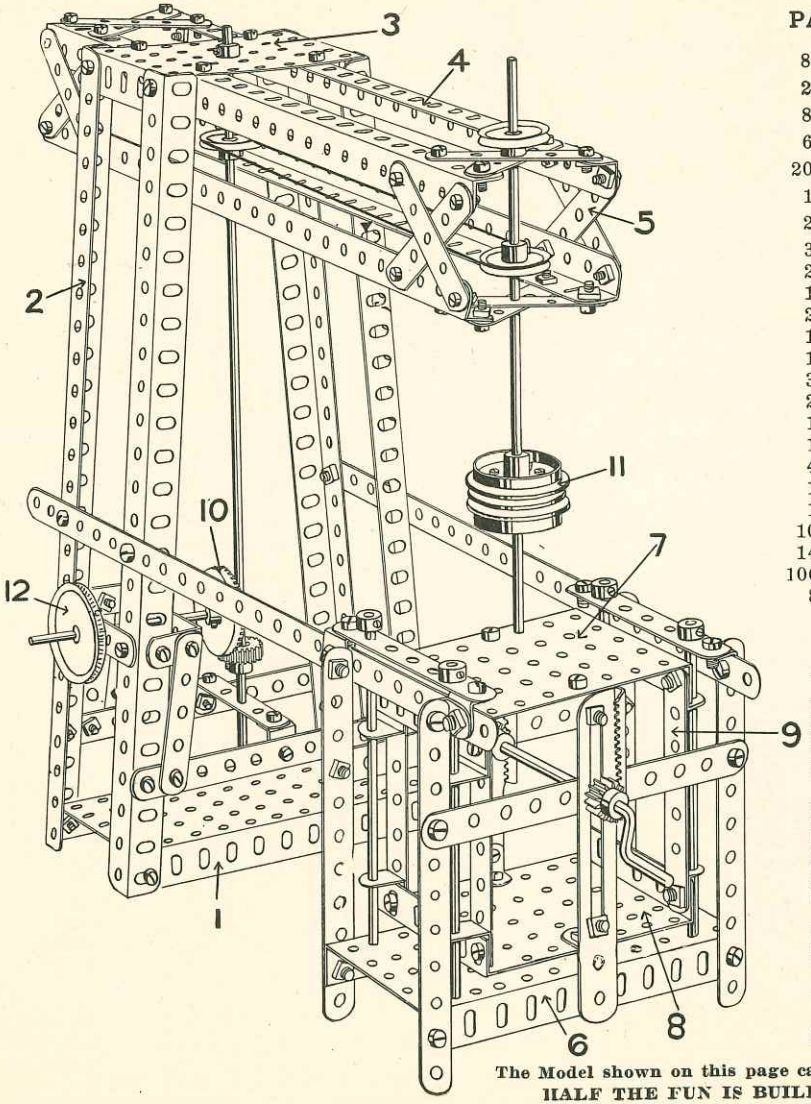
2—Large Plates
1—Small Plate
13—5½″ Strips
2—3½″ Strips
4—3″ Strips
30—2½″ Strips
6—2″ Axle Rods
1—Large Bent Strip
6—4½″ Axle Rods
4—2″ Axle Rods
8—Flanged Wheels
4—1″ Pulleys
2—½″ Pulleys
1—Worm
1—¾″ Pinion
1—¾″ Crown Gear
2—Bush Wheels
9—Collars
28—Angle Brackets
96—Nuts and Screws



The **Engine and Tender** is a test model and we will give no explanation, leaving the boy to work this out for himself.

All Models shown on this page can be made with The American Model Builder Outfit No. 5, or with No. 4 and No. 4½ Combined.

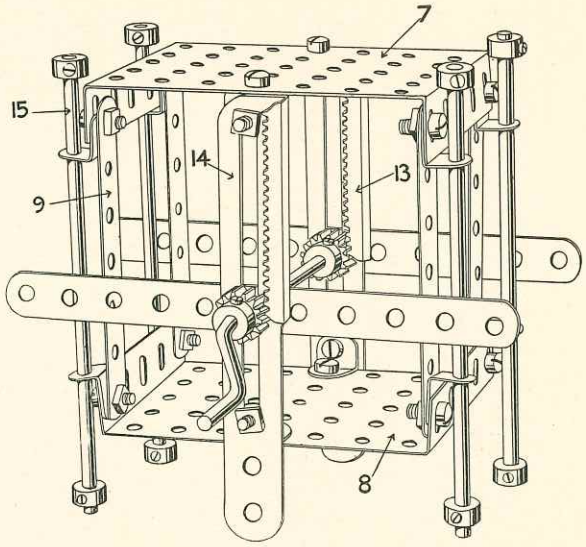
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



PARTS REQUIRED

8—12½" Angle Girders
2—12½" Strips
8—5½" Strips
6—3½" Strips
20—2½" Strips
1—Large Bent Strip
2—Large Plates
3—Small Plates
2—Oscillating Racks
1—¾" Pinion
2—½" Pinions
1—1½" Crown Gear
1—1½" Pulley
3—1" Pulleys
2—Flanged Wheels
1—11½" Axle
1—6" Axle
4—5" Axles
1—3½" Axle
1—2" Axle
10—Collars
14—Angle Brackets
106—Nuts and Screws
8—Wood Screws

DRILL PRESS
Fig. No. 105



The Drill Press makes a very interesting and instructive Model, and demonstrates a good many practical mechanical movements.

In erecting this Model, first make the rear upright frame. This is made of a Large Plate (1) to which are attached four upright 12½" Angle Girders (2). At the top of these is bolted Small Plate (3). Next construct the horizontal head, which is made of four 12½" Angle Girders (4), fastened at each end with two diagonal 2½" Strips (5). When this head is completed it should be bolted to the Small Plate (3), the screw passing through the sixteenth hole of the Angle Girders.

Next construct the sliding Table, which is made of a Large Plate (6), to each corner of which is attached the 5½" upright Strip. These upright Strips are then bolted to Angle Brackets and fastened to the 12½" Strips, as shown in the large cut. Next construct the interior of the table, which is made of two Small Plates (7and 8). To these should be attached two Oscillating Racks (13 and 14). The sides of these Plates are fastened by means of four 3½" Strips (9), and four Angle Brackets for receiving the perpendicular 5" Axles (15). Two ½" Pinions should be attached to the 5½" Crank, these to mesh with the Oscillating Racks, so that the table will move up and down when the Crank is turned.

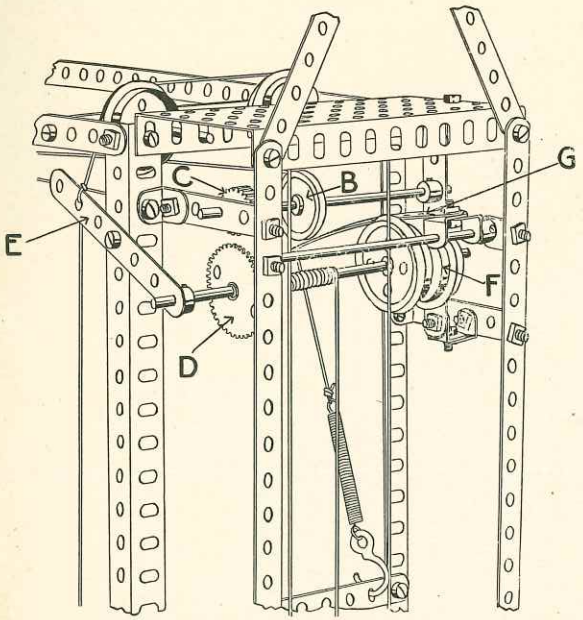
The gearing is accomplished by means of a Crown Gear (10) attached to a 3½" Axle Rod, which meshes with the ¾" Pinion attached to the perpendicular 11½" Axle Rod. At the top of this 11½" Axle Rod should be fastened a 1" Pulley, which is belted to the 1" Pulley mounted on the 6" perpendicular Axle Rod carrying the spindle.

The chuck is made of two Flanged Wheels (11) bolted together, a 2" Axle Rod being fastened in the lower Flanged Wheel.

This Model should be operated by a Motor belted to the 1½" Pulley Wheel (12). This makes an exceptionally interesting Model, and the boy will be fully repaid for the time spent in constructing it.

The Model shown on this page can be made with The American Model Builder Outfit No. 5, or with No. 4 and No. 4½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



WAREHOUSE WITH ELEVATOR

Fig. No. 106

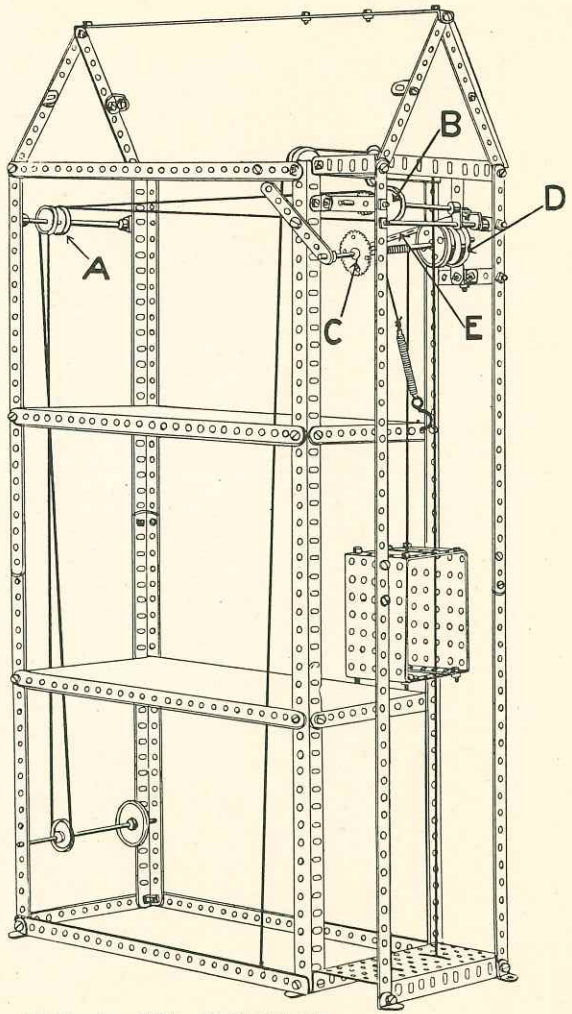
PARTS REQUIRED

8—12½" Angle Girders	4—1" Pulleys
13—12½" Strips	4—Flanged Wheels
13—5½" Strips	1—1½" Gear Wheel
2—3½" Strips	1—¾" Pinion
7—2½" Strips	1—Hook
2—Large Plates	2—6" Axles
2—Small Plates	3—5" Axles
27—Angle Brackets	2—2" Axles
1—1¾" Spring	10—Collars
1—1½" Pulley	92—Nuts and Screws

The Warehouse with Elevator is a very inigenious Model and is a copy of the elevators used for the storage of grain. When completed it will afford a great deal of pleasure to the builder. The main frame work is very simple and can easily be constructed by referring to the cut.

The gearing is the most important part, and in order that this may be properly assembled, we have shown an enlarged view of this. As you will note from the cut, this Model is to be operated by a small motor, which should be belted to the 1½" Pulley Wheel on the lower Axle Rod. The main driving belt is carried from the 1" Pulley on the lower axle over the two 1" Pulleys (A) on the upper axle, then over the 1" Pulley (B) that is attached to the axle supported in the center of the frame carrying the elevator. A ¾" Pinion is also attached to this same axle which furnishes the power for raising and lowering the cage. The axle carrying the 1½" Gear (C) is fastened through the third hole from the bottom of the 3½" upright strip and through the end hole of the 3½" Oscillating Strip. The two Flanged Wheels (D) are also fastened to this axle close to the 3½" Strip. These are used as a brake drum to prevent the cage from dropping down quickly when the gear is thrown out of mesh. A 5½" Strip (E) provides the brake lever which passes over the brake drum. This is fastened at one end to two Angle Brackets which are supported by the third Axle Rod.

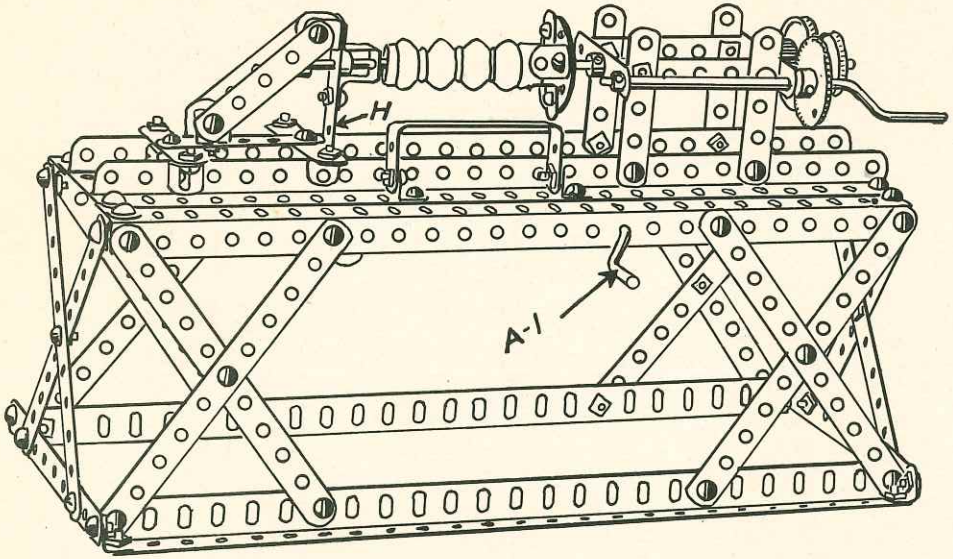
In order to place the proper tension on the brake, it is necessary to attach a 1¾" Spring to the cross frame and to this a cord is attached engaging the brake lever and passing over the two Flanged Wheels at the top and fastened to the Oscillating Arm which supports the 1½" Gear. This cord is then fastened to the bottom of the frame. When it is desired to move the cage up, it is only necessary to pull on the cord that is attached to the Oscillating Arm until the 1½" Gear meshes with the ¾" Pinion. When it is desired to lower the elevator, simply release this cord and the cage will drop down of its own weight. The roof and flooring are made of stiff cardboard cut to size.

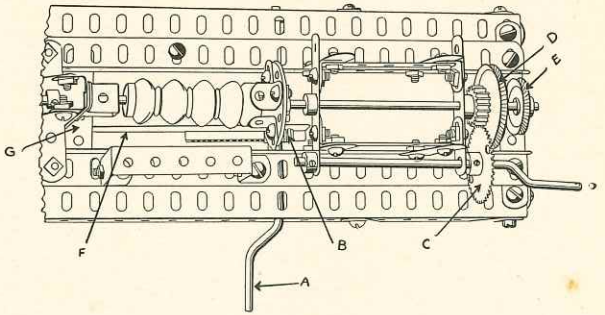


The Model shown on this page can be made with The American Model Builder Outfit No. 5, or with No. 4 and No. 4½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

TURNING LATHE
Fig. No. 107





The Turning Lathe is one of the most practical models shown and can be used for turning up soft material. In the cut, we show a candle turned up in the form of a pillar. The frame work needs no particular explanation. Crank "A" in the detailed cut and "A"-1 in the large cut, fasten the work into the Lathe. In the center of this Crank is attached a ½" Pinion at point "B" which meshes with the Oscillating Rack "F" shown in the detailed cut. By turning this Crank, the piece to be turned is held securely in position between the Double Bent Strip and the Angle Brackets attached to the Bush Wheel. The 5½" Crank at the side furnishes the power. To this is attached a 1½" Gear Wheel which meshes with the ¾" Crown, fastened to the main Axle. At the end of this Axle Rod is attached the Bush Wheel which forms the Chuck for the Lathe. "G" is a 2½" Strip on the under side of which is attached a Single Bent Strip and to the side of this is fastened the Oscillating Rack. "H" is the 2½" upright Strip, to the upper end of which is attached a Double Bent Strip to form a bearing for the 2" Axle Rod and at the lower end of this Strip is attached an Angle Bracket fastened to the 2½" cross Strip "G." "D" is a 1½" Pulley and "E" is a 1" Pulley Wheel. These are fastened to this Main Axle in case it is desired to operate this model by Motor. When desiring a slow speed, the Motor should be belted to the Large Pulley Wheel, and when desiring a faster speed, the Motor should be belted to the 1" Pulley Wheel. When a Candle is inserted in the Chuck, same can be turned with the use of a dull knife or screw driver held against the Large Bent Strip.

PARTS REQUIRED

6—12½" Angle Girders	1—Oscillating Rack
14—5½" Strips	1—½" Pinion
2—3½" Strips	1—¾" Pinion
16—2½" Strips	1—1½" Gear
1—Large Bent Strip	1—1½" Pulley
1—Double Bent Strip	1—1" Pulley
1—Single Bent Strip	6—Collars
1—2" Axle Rod	1—Bush Wheel
1—5" Axle Rod	28—Angle Brackets
2—5½" Cranks	85—Nuts and Screws

The Turning Lathe completes the models that can be made with Outfit No. 5. By purchasing Accessory Outfit No. 5½, 10 additional Models can be made, some of which are shown on the following pages.

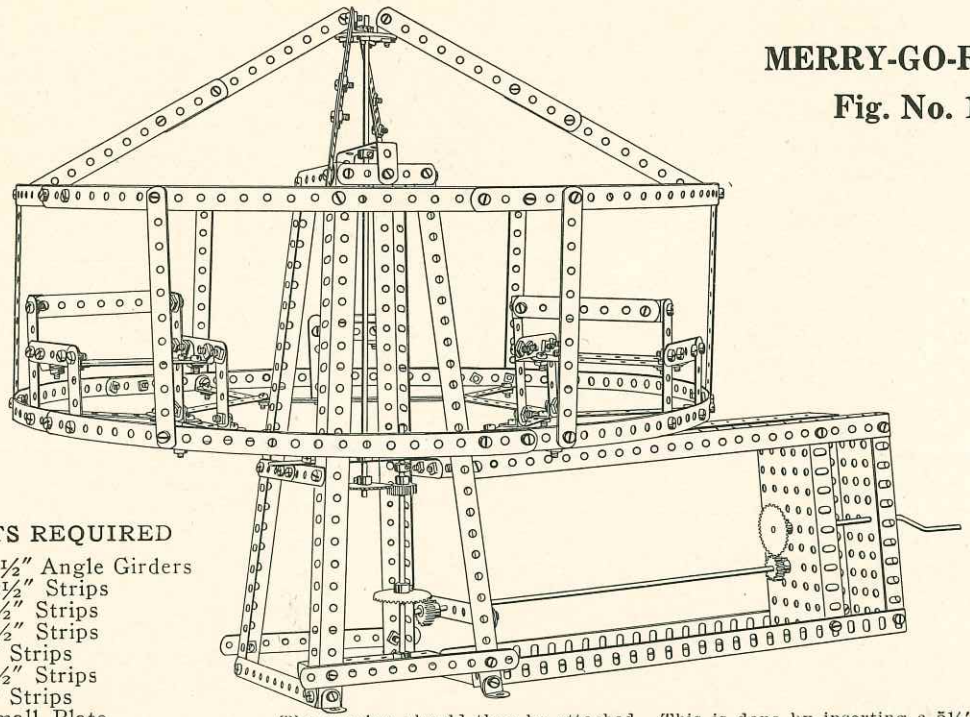
For prices of separate parts and Accessory Outfits, see pages 28 and 29.

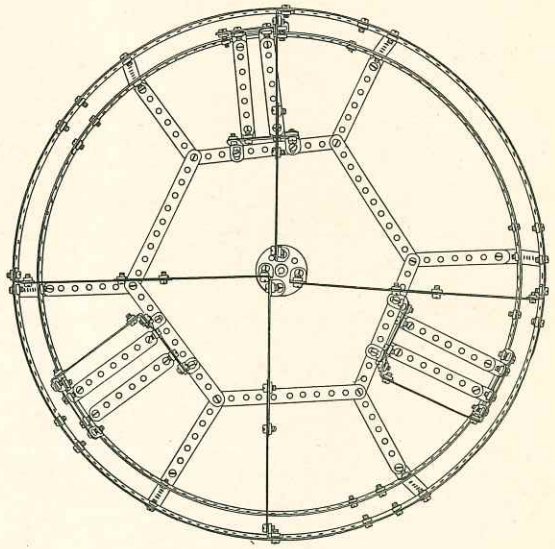
For special Motors and Countershaft for operating Models by Electricity, see pages 26 and 27.

The Model shown on this page can be made with The American Model Builder Outfit No. 5, or with No. 4 and No. 4½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

MERRY-GO-ROUND
Fig. No. 120





PARTS REQUIRED

8—12½" Angle Girders
10—12½" Strips
28—5½" Strips
16—3½" Strips
6—3" Strips
10—2½" Strips
6—2" Strips
1—Small Plate
2—Large Plates
1—Large Bent Strip
2—11½" Axle Rods
1—6" Axle Rod
1—5½" Crank
2—1½" Gears
3—¾" Pinions
1—1½" Crown Gear
1—Bush Wheel
8—Collars
50—Angle Brackets
173—Nuts and Screws

Every boy has ridden on a **Merry-Go-Round**, and the building of this Model will prove both interesting and instructive.

First make the lower frame work, which is made of four 12½" Angle Girders attached to two Large Plates. Then construct the upright frame work, which is made of four 12½" Angle Girders bolted together at the top with four 2½" Strips and at the bottom with 5½" Strips, as shown in the large cut. Then attach the lower frame to the upright frame by means of four Angle Brackets.

The gearing should then be attached. This is done by inserting a 5½" Crank in the Large Plates, to the end of which should be attached an 1½" Gear Wheel. This Gear meshes with a ¾" Pinion attached to a 11½" Axle Rod, as shown in the large cut. At the opposite end of this 11½" Axle Rod should be fastened another ¾" Pinion which meshes with the 1½" Crown Gear attached to an upright 6" Axle. This 6" Axle Rod passes through a 5½" Strip at the top, and at the bottom through the Small Plate which should be bolted to the 12½" Angle Girders in the lower frame. Near the top of this 6" Axle should be attached another ¾" Pinion, and this should mesh with the 1½" Gear attached to the upright 11½" Axle which passes up through the Large Bent Strip at the top and forms the center pole for the Merry-Go-Round. Be sure and attach a Collar to the 11½" Axle to rest on top of the Large Bent Strip, as well as one to rest on the 5½" Strip just above the 1½" Gear. These two Collars will have to carry the entire weight of the revolving platform.

The Revolving Platform should next be made. Begin by making the lower platform, which is made of six 5½" Strips, to each end being attached a 3½" Strip, as shown in the small cut. Then make the two circles, using five 12½" Strips for each, overlapping the Strips three holes, and fasten these circles together by six upright 5½" Strips. Next construct the three seats and fasten these in position by means of Angle Brackets.

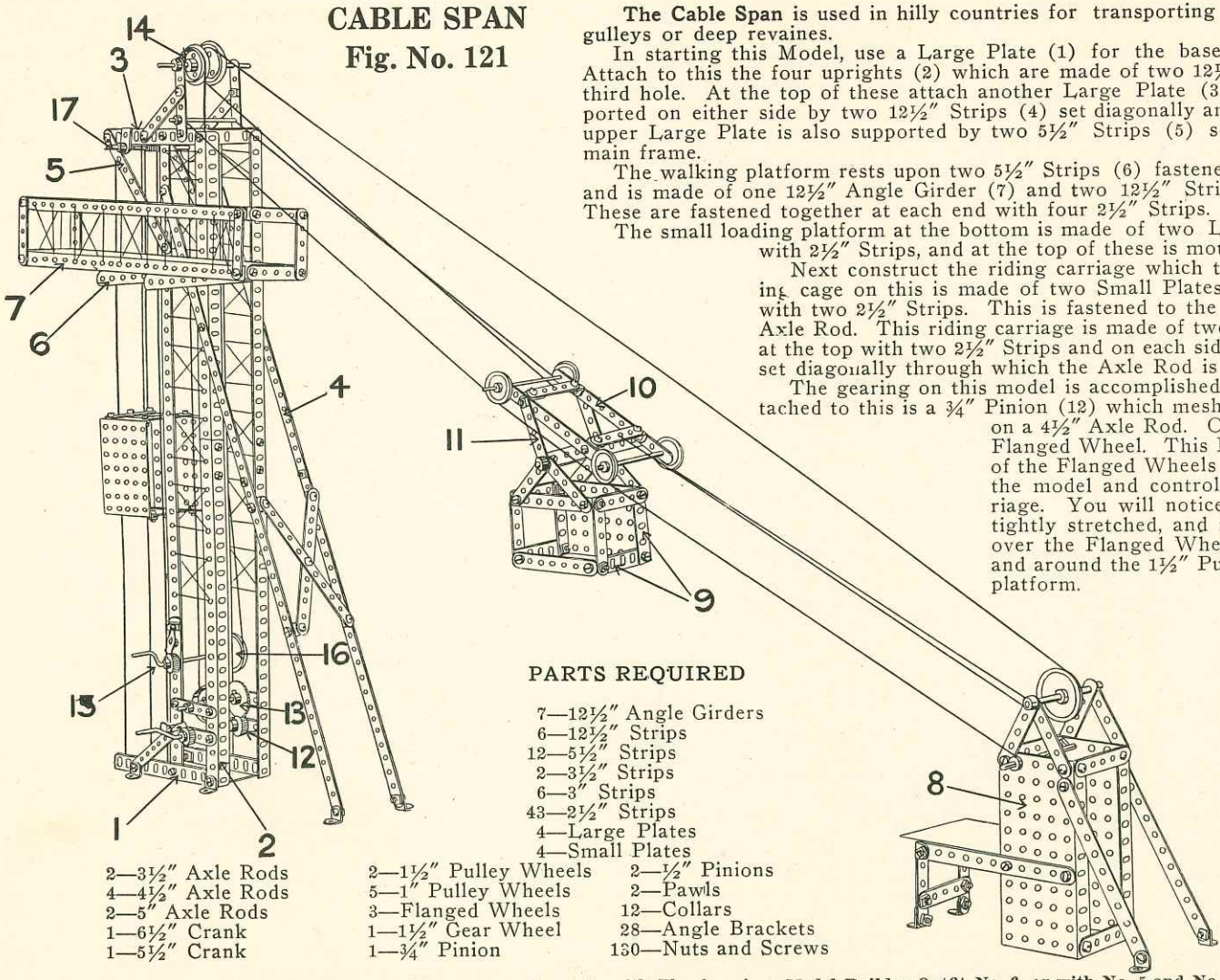
This swinging platform is carried by eight 5½" Strips bolted together in pairs, as shown in the large cut. At the ends of these Strips should be fastened four Angle Brackets, and these bolted fast to a Bush Wheel, as shown in the small cut. Then set the moving platform in position, passing the upright 11½" Axle through the Bush Wheel. Be sure and fasten the Set Screw in the Bush Wheel securely before attempting to operate the Model.

This makes one of the most interesting Models we show, and when completed will furnish the boy a great deal of amusement as well as satisfaction.

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

CABLE SPAN
Fig. No. 121



The Cable Span is used in hilly countries for transporting ore and other substances across gulleys or deep revaines.

In starting this Model, use a Large Plate (1) for the base with the flanges turned upward. Attach to this the four uprights (2) which are made of two 12½" Angle Girders overlapped in the third hole. At the top of these attach another Large Plate (3). This frame work is then supported on either side by two 12½" Strips (4) set diagonally and overlapped in the third hole. The upper Large Plate is also supported by two 5½" Strips (5) set diagonally and fastened to the main frame.

The walking platform rests upon two 5½" Strips (6) fastened to the sides of the main frame, and is made of one 12½" Angle Girder (7) and two 12½" Strips forming the bottom and sides. These are fastened together at each end with four 2½" Strips.

The small loading platform at the bottom is made of two Large Plates (8) fastened together with 2½" Strips, and at the top of these is mounted a 1½" Pulley Wheel.

Next construct the riding carriage which travels back and forth. The swinging cage on this is made of two Small Plates (9) fastened together at each end with two 2½" Strips. This is fastened to the riding carriage by means of a 4½" Axle Rod. This riding carriage is made of two 5½" Strips (10) fastened together at the top with two 2½" Strips and on each side are mounted two 2½" Strips (11), set diagonally through which the Axle Rod is passed.

The gearing on this model is accomplished by means of a 5½" Crank, and attached to this is a ¾" Pinion (12) which meshes with an 1½" Gear (13) mounted on a 4½" Axle Rod. On this same Axle Rod is mounted a Flanged Wheel. This Flanged Wheel is then belted to one of the Flanged Wheels (14) mounted at the extreme top of the model and controls the movement of the riding carriage. You will notice this carriage rides on two cables tightly stretched, and is operated by a belt which passes over the Flanged Wheel at the top of the main structure and around the 1½" Pulley Wheel mounted on the loading platform.

The second Crank (15) that is mounted through the ninth hole from the bottom in the Angle Girders operates the elevator cage. At the end of this Crank (16) is attached an 1½" Pulley Wheel that is belted to the 1" Pulley Wheel mounted on a 5" Axle Rod (17) which operates and controls the up and down movement of the elevator cage.

When completed, this is an extremely interesting model and will be a source of a great deal of satisfaction to the builder, as it clearly demonstrates some of the engineering problems that confront our engineers who operate in hilly countries.

PARTS REQUIRED

7—12½" Angle Girders
6—12½" Strips
12—5½" Strips
2—3½" Strips
6—3" Strips
43—2½" Strips
4—Large Plates
4—Small Plates

2—3½" Axle Rods
4—4½" Axle Rods
2—5" Axle Rods
1—6½" Crank
1—5½" Crank

2—1½" Pulley Wheels
5—1" Pulley Wheels
3—Flanged Wheels
1—1½" Gear Wheel
1—¾" Pinion

2—½" Pinions
2—Pawls
12—Collars
28—Angle Brackets
130—Nuts and Screws

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

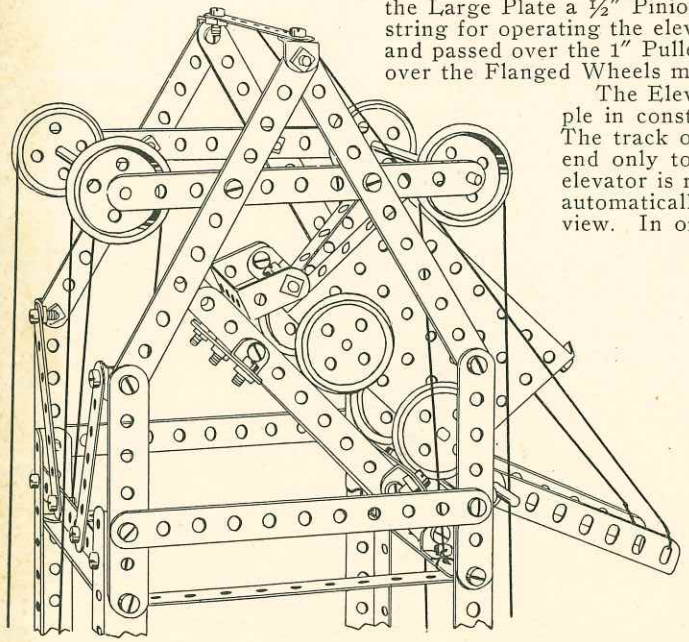
COAL ELEVATOR
Fig. No. 122

The Coal Elevator is used extensively by manufacturing plants, where their coal is received in car load lots on ground level, and the coal itself elevated to a hopper which automatically feeds the boiler.

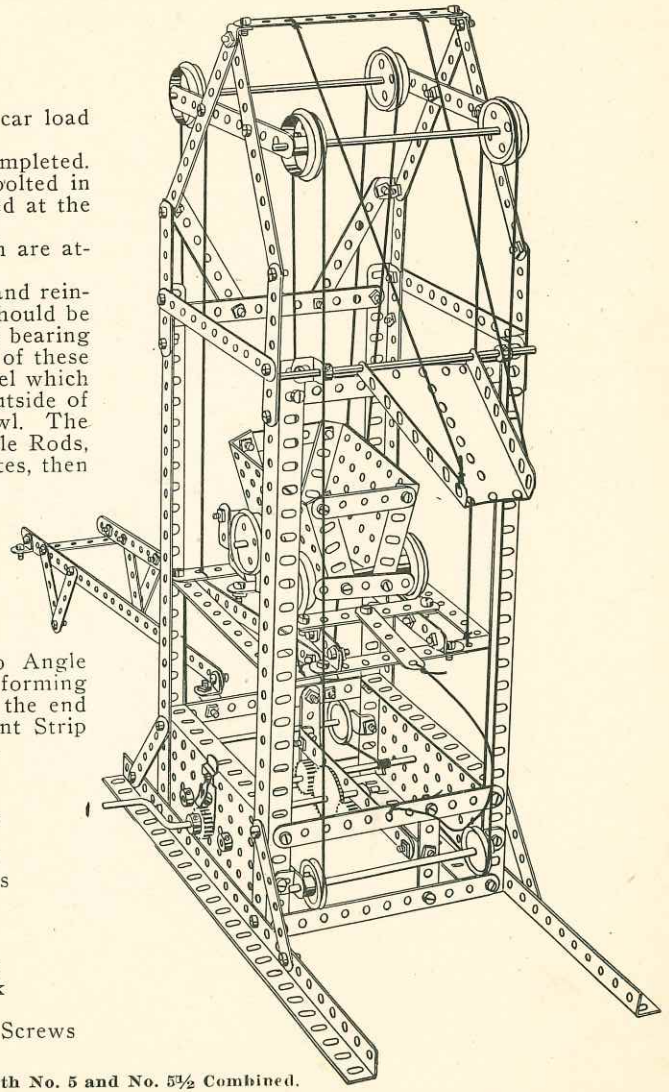
The construction of this Model will be found very simple, yet extremely interesting when completed. The outside frame work is made of four 12½" Angle Girders, to which are attached four 3½" Strips bolted in the third hole. These Angle Girders are fastened together with four 5½" Strips at the top and bolted at the bottom to two 12½" Angle Girders which form the base.

The upper frame work carrying the Flanged Wheels is made of seven 5½" Strips, four of which are attached to the ends of the 3½" Strips which form the extension to the 12½" Angle Girders.

The gearing is enclosed in the two Large Plates bolted fast to the Angle Girders at the bottom and reinforced by four 5½" Strips fastened across the ends, as shown in the cut. A perpendicular 2½" Strip should be fastened to these 5½" Strips and a 5½" horizontal Strip should be bolted to the 2½" Strips to form a bearing for the Axle Rods. Next insert two 6" Axle Rods in the fourth hole of the Large Plates, and to each of these Rods attach a ¾" Pinion. Then insert a 6½" Crank in the seventh hole, attaching a 1½" Gear Wheel which meshes with the two ¾" Pinions. Also attach to this Crank on the outside of the Large Plate a ½" Pinion, which works in connection with the Pawl. The string for operating the elevator cage should be fastened to the 6" Axle Rods, and passed over the 1" Pulleys, mounted at each end of the Large Plates, then over the Flanged Wheels mounted at the top of the frame.



The Elevator carrying the Dump Car is very simple in construction, being made of four 5½" Strips. The track on which the car runs is fastened at one end only to two Angle Brackets, so that when the elevator is raised to the top of the chute the car will automatically dump, as is shown in the sectional view. In order to prevent the dump car from running off the track when dumping, two Angle Brackets are attached to the 3½" Strip forming the lower tie for the two tracks, and on the end of the dump car is fastened a Large Bent Strip which hooks under these Angle Brackets.

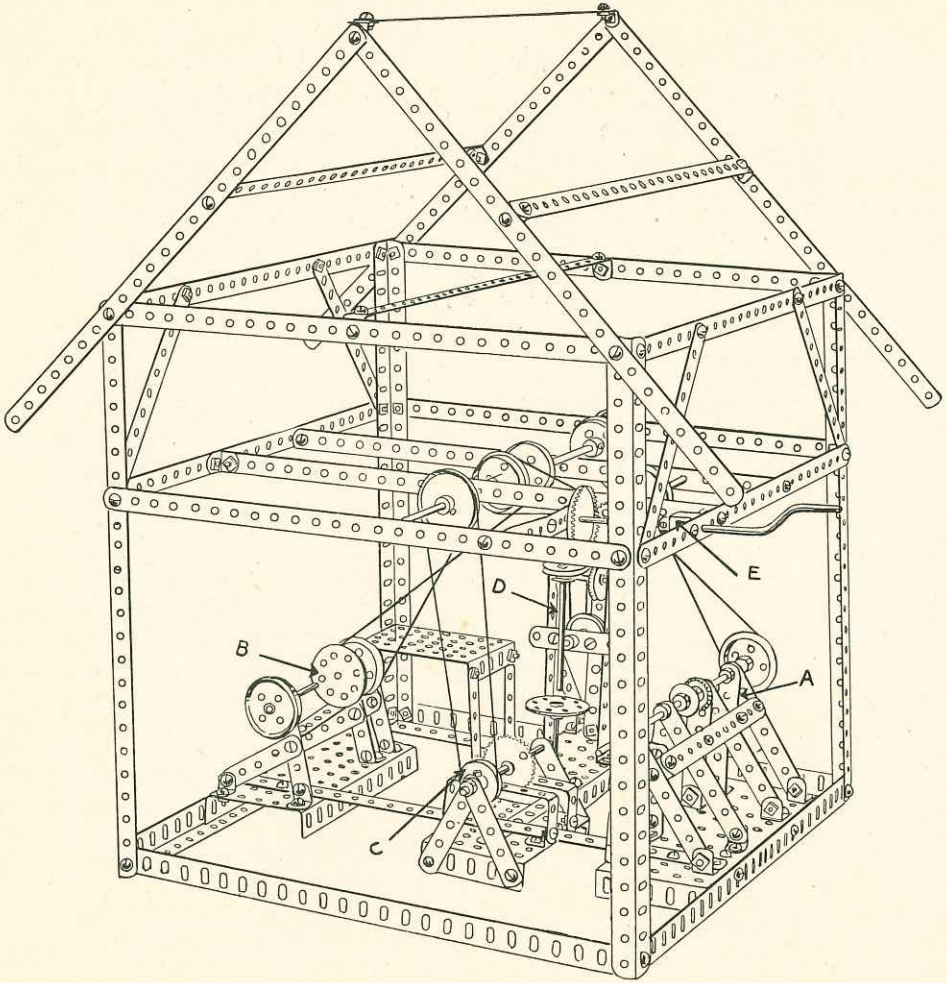


PARTS REQUIRED

6—12½" Angle Girders	4—1" Pulleys
2—12½" Strips	1—1½" Gear
21—5½" Strips	1—½" Pinion
9—3½" Strips	2—¾" Pinions
4—3" Strips	1—Pawl
11—2½" Strips	4—6" Axles
2—Large Plates	3—5" Axles
2—Small Plates	2—3½" Axles
1—Sector Plate	1—6½" Crank
1—Large Bent Strip	7—Collars
28—Angle Brackets	114—Nuts and Screws
8—Flanged Wheels	

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



MACHINE SHOP
Fig. No. 123

PARTS REQUIRED

6—Flanged Wheels	20—2½ Strips
3—1½″ Pulleys	8—12½″ Angle Girders
6—1″ Pulleys	56—Angle Brackets
2—Bush Wheels	2—Large Bent Strips
1—½″ Pinion	1—Double Bent Strip
1—1½″ Gear	4—Small Plates
1—1½″ Crown	2—Large Plates
2—¾″ Crowns	1—11½″ Axle Rod
16—Collars	4—4½″ Axle Rods
19—12½″ Strips	2—3½″ Axle Rods
10—5½″ Strips	4—2″ Axle Rods
6—3½″ Strips	1—6½″ Crank
4—3″ Strips	165—Nuts and Screws

The Machine Shop is a combination of small models, all operated from a main shaft. "A" is a small Lathe; "B" is a Turning Lathe; "C" is a small Power Saw; "D" a Drill Press. The construction of this Drill Press is the same as Fig. 6 shown on page 5, except that an additional 1″ Pulley Wheel is mounted on the horizontal Axle Rod which is belted to the main shaft above.

The power in this Machine Shop is transmitted by the Crank shown at the upper right-hand side. This passes through a Double Bent Strip "E" and to the end of this is fastened a 1½″ Gear Wheel which meshes with the ½″ Pinion, mounted on the 4½″ Axle Rod. In the center of this Axle Rod is mounted a 1½″ Pulley Wheel and this is belted to the main 11½″ Drive Shaft which operates all the models.

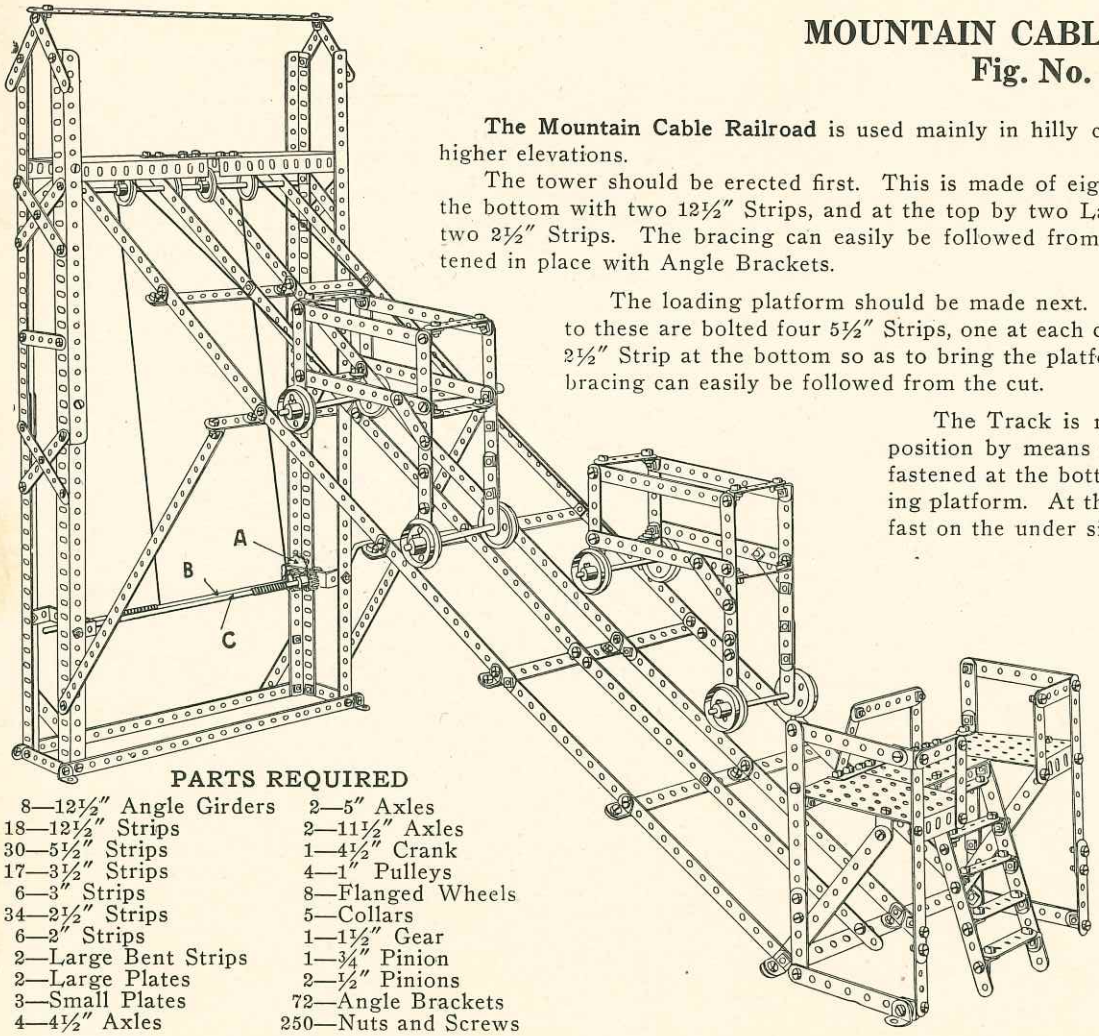
The construction of this model is comparatively simple, but very effective when set in operation. By mounting a 1″ Pulley Wheel on the outside of the framework to the 6½″ Crank, same can be belted to a Geared Countershaft and this Countershaft can be belted directly to one of the small models, so that all of the models can be set in operation at one time by simply turning the lever on the Motor.

Note that the main Drive Shaft in the upper part of the building has mounted on the 11½″ Axle Rod, three 1½″ Pulleys and two Flanged and Grooved Wheels. One of these is belted direct to the Drill Press, one to the Large Lathe, one to the Power Saw and one to the Turning Lathe.

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

MOUNTAIN CABLE RAILROAD
Fig. No. 124



The Mountain Cable Railroad is used mainly in hilly cities for transporting passengers as well as vehicles to higher elevations.

The tower should be erected first. This is made of eight 12½″ Angle Girders bolted together, and fastened at the bottom with two 12½″ Strips, and at the top by two Large Plates which are fastened together in the center by two 2½″ Strips. The bracing can easily be followed from the cut. The roof can be made of cardboard and fastened in place with Angle Brackets.

The loading platform should be made next. This is made of three Small Plates bolted together, and to these are bolted four 5½″ Strips, one at each corner. These Strips are then extended by attaching a 2½″ Strip at the bottom so as to bring the platform even with the bottom of the car. The railing and bracing can easily be followed from the cut.

The Track is made of three 12½″ Strips bolted together and held in position by means of Angle Brackets bolted to the 5½″ cross Strips, and fastened at the bottom to two 5½″ Strips which are bolted fast to the loading platform. At the top these tracks are fastened to Angle Brackets bolted fast on the under side of the Large Plates.

The power is applied by means of two ½″ Pinions attached to two 11½″ Axle Rods, "B" and "C," which are passed through the first and second holes of the Large Bent Strips fastened to the Angle Girders. These ½″ Pinions mesh with each other, causing the Axles to revolve in opposite directions. A ¾″ Pinion should then be attached to axle "B" on the outside of the Large Bent Strip, and this should mesh with the 1½″ Gear "A" attached to the 4½″ Crank. This crank passes through the second hole in the 2½″ Strip attached to the outside of the upright Angle Girders and through the second hole in the Large Bent Strip. When the Crank is operated both cars will move in opposite directions.

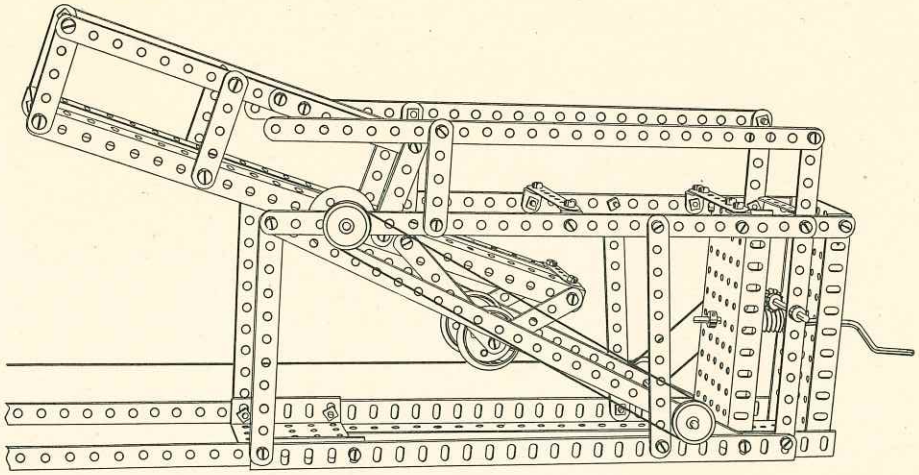
PARTS REQUIRED

8—12½″ Angle Girders	2—5″ Axles
18—12½″ Strips	2—11½″ Axles
30—5½″ Strips	1—4½″ Crank
17—3½″ Strips	4—1″ Pulleys
6—3″ Strips	8—Flanged Wheels
34—2½″ Strips	5—Collars
6—2″ Strips	1—1½″ Gear
2—Large Bent Strips	1—¾″ Pinion
2—Large Plates	2—½″ Pinions
3—Small Plates	72—Angle Brackets
4—4½″ Axles	250—Nuts and Screws

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

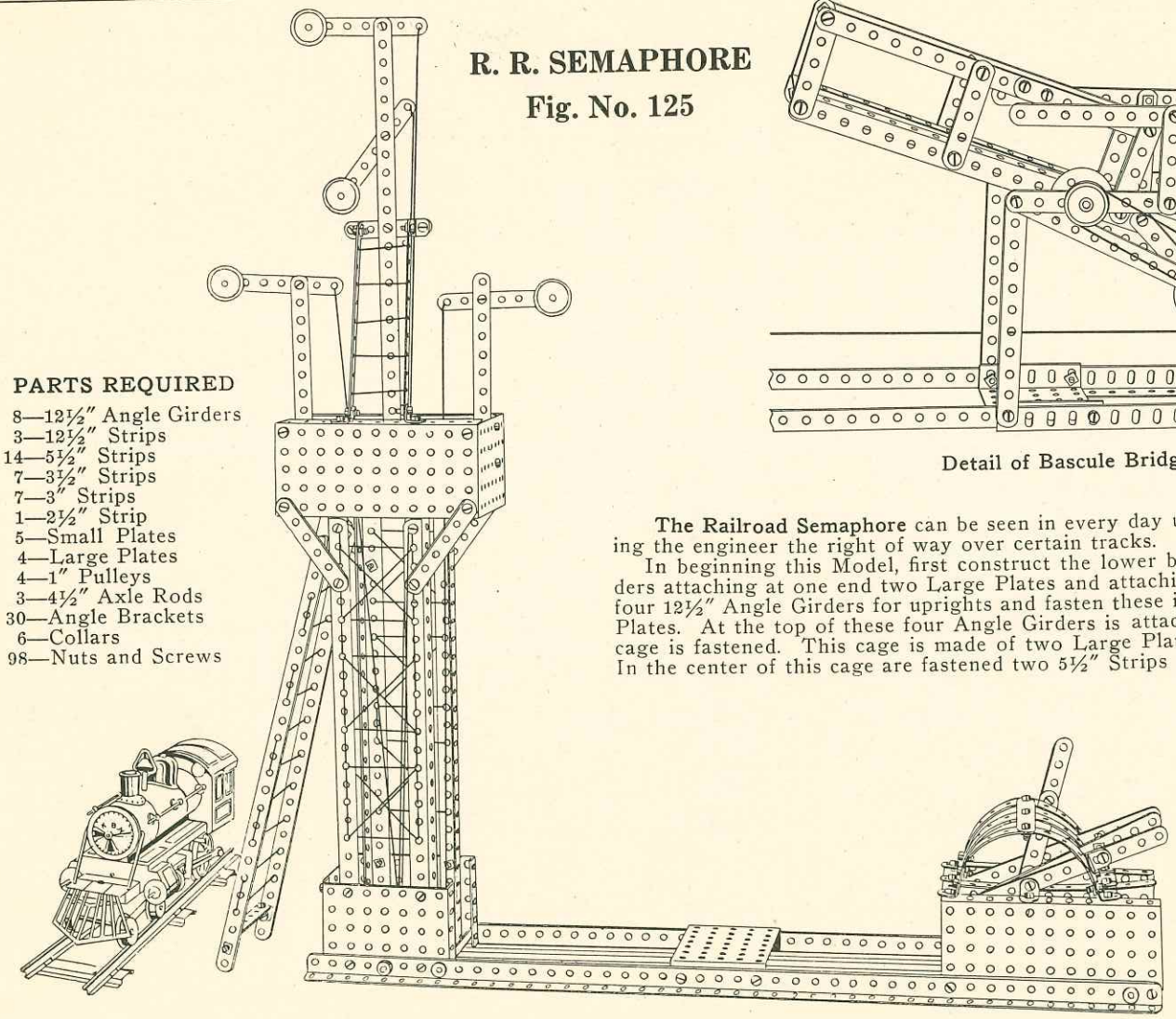
R. R. SEMAPHORE
Fig. No. 125



Detail of Bascule Bridge, Fig. No. 126, See Page 45.

PARTS REQUIRED

8—12½" Angle Girders
3—12½" Strips
14—5½" Strips
7—3½" Strips
7—3" Strips
1—2½" Strip
5—Small Plates
4—Large Plates
4—1" Pulleys
3—4½" Axle Rods
30—Angle Brackets
6—Collars
98—Nuts and Screws



The Railroad Semaphore can be seen in every day use in any railroad yard and is used for giving the engineer the right of way over certain tracks.

In beginning this Model, first construct the lower base which is made of four 12½" Angle Girders attaching at one end two Large Plates and attaching to the other end two Small Plates. Use four 12½" Angle Girders for uprights and fasten these in the second hole from the end in the Small Plates. At the top of these four Angle Girders is attached an Angle Bracket on which the upper cage is fastened. This cage is made of two Large Plates with a Small Plate fastened at each end. In the center of this cage are fastened two 5½" Strips to which are bolted the three Signal Arms. The matter of attaching the Signals and the Ladders is very simple and can be easily followed from the cut.

You will note that three 4½" Axle Rods are used for the cords operating the various Signals; two of these are fastened in the lower Small Plates and one is fastened in the end of the Large Plate, where the operating levers are located. The cord is then attached to the various Signals, passed under the 4½" Axle Rods in the Small Plates and around the 4½" Axle Rod in the Large Plate, and then fastened to the ends of the 5½" Strips forming the levers. One signal cord is attached to each lever, and when the lever is thrown back the signal should rise into proper position.

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

BASCULE BRIDGE

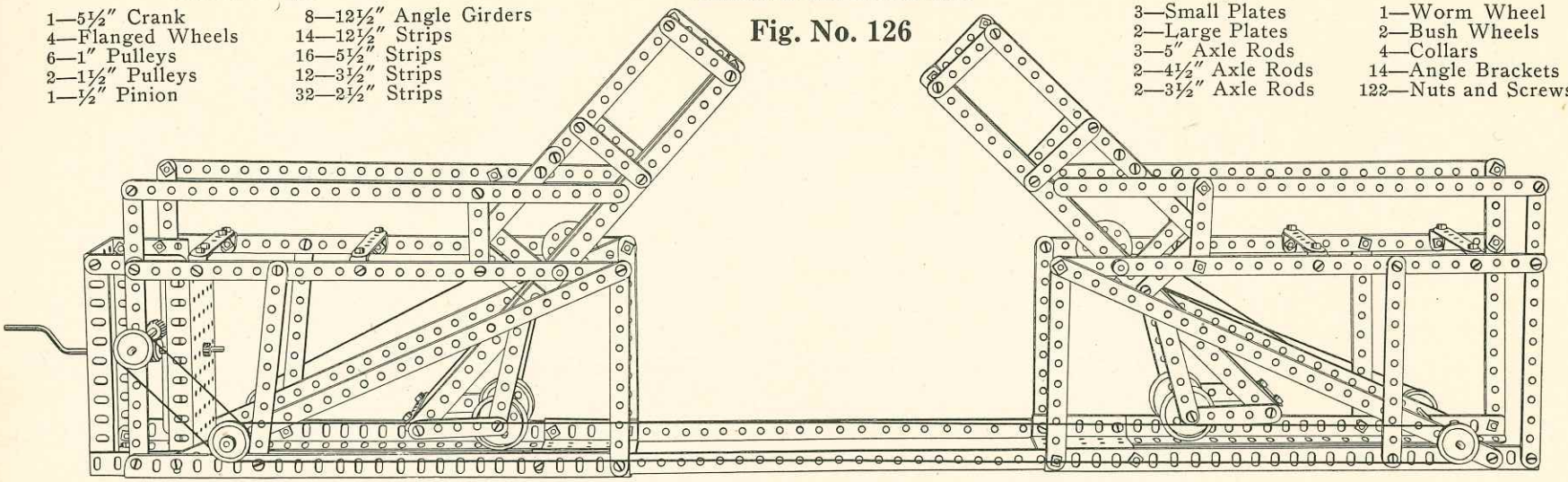
Fig. No. 126

PARTS REQUIRED

1—5½″ Crank
4—Flanged Wheels
6—1″ Pulleys
2—1½″ Pulleys
1—½″ Pinion
8—12½″ Angle Girders
14—12½″ Strips
16—5½″ Strips
12—3½″ Strips
32—2½″ Strips

PARTS REQUIRED

3—Small Plates
2—Large Plates
3—5″ Axle Rods
2—4½″ Axle Rods
2—3½″ Axle Rods
1—Worm Wheel
2—Bush Wheels
4—Collars
14—Angle Brackets
122—Nuts and Screws



The Bascule Bridge is a most interesting engineering Model, and is used in a great many cities where navigable streams are crossed and it is necessary to quickly raise and lower the center bridge in order to allow the passage of vessels.

The two approaches should be erected first by using two 12½″ Angle Girders for the base, and attaching to each side of these three 5½″ Strips, which should be bolted fast at the top to a 12½″ Strip. The Angle Girders should be fastened together at one end with a Small Plate, and at the other end with a 3½″ Strip. The 12½″ Strips should also be fastened together by two 3½″ Strips and the approaches stiffened by fastening a 12½″ Strip diagonally on either side. The two approaches should then be fastened together at the bottom with two 12½″ Strips.

Next construct the two moving sections of the bridge, which are made of two 12½″ Angle Girders fastened together at each end with a 2½″ Strip. Then mount two Flanged Wheels on a 3½″ Axle and fasten these on the end of the moving section, as shown in the cut. These moving sections are then mounted on a 4½″ Axle passed through the thirteenth hole of the 12½″ Strip and passed through a Bush Wheel which should be bolted fast to the 12½″ Strip. Be sure and securely fasten the Set Screw in the Bush Wheel, as this controls the movements of the moving sections.

The Gearing is housed in two Large Plates fastened at the lefthand end of the Bridge, and consists of a Worm attached to a 4½″ Crank which meshes with a ½″ Pinion mounted on a 5″ Axle. On the end of this Axle is mounted a 1″ Pulley which is belted to one of the 1″ Pulleys mounted on the lower Axle. The other Pulley should be belted to the opposite approach so as to make both sections of the Bridge move together, as shown in the cut.

In the sectional view is shown the other side of the Bridge, which clearly shows how the belts are carried from the lower Axle to the moving section. On one side of the Bridge this upright belt should be crossed so as to allow the center sections to move in opposite directions, or open and close simultaneously.

This Model when completed makes an interesting study, as it is built on strictly scientific principles.

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

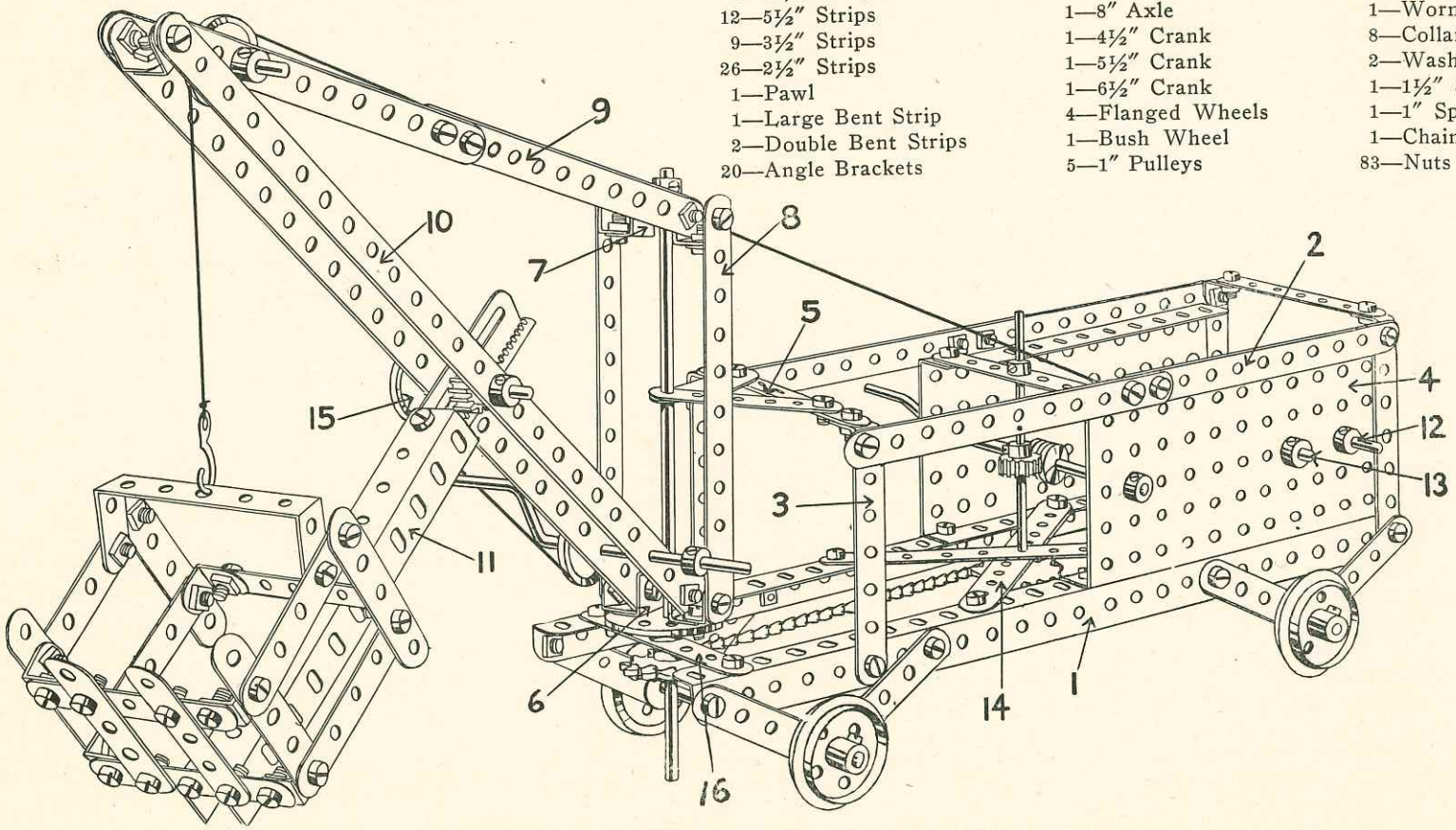
STEAM SHOVEL

Fig. No. 127

2—5½" Angle Girders
2—12½" Angle Girders
2—12½" Strips
12—5½" Strips
9—3½" Strips
26—2½" Strips
1—Pawl
1—Large Bent Strip
2—Double Bent Strips
20—Angle Brackets

PARTS REQUIRED

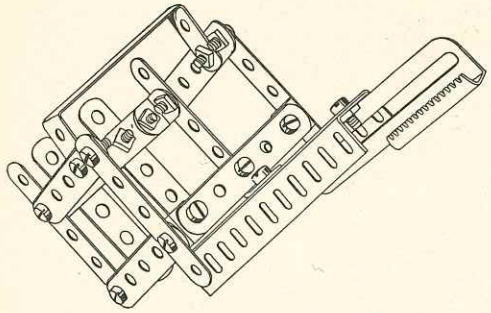
1—Oscillating Rack
2—2" Axles
2—5" Axles
1—8" Axle
1—4½" Crank
1—5½" Crank
1—6½" Crank
4—Flanged Wheels
1—Bush Wheel
5—1" Pulleys
1—1½" Gear Wheel
1—¾" Pinion
3—½" Pinions
1—Worm Wheel
8—Collars
2—Washers
1—1½" Sprocket
1—1" Sprocket
1—Chain
83—Nuts and Screws



The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

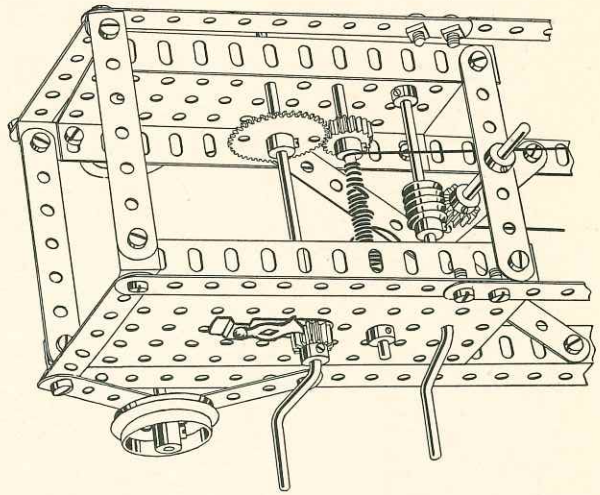
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

STEAM SHOVEL



The Steam Shovel can be seen in use wherever heavy excavation work is done and is the most modern appliance used by railroads and construction companies.

The Truck should be erected first, and is made of two 12½" Angle Girders (1), which are fastened at each end with a 3½" Strip (16), braced in the center by two 5½" diagonal Strips (14). To these Girders should then be bolted four upright 3½" Strips (3), and these bolted at the top to two 12½" Strips (2), and these fastened together at each end by two 3½" Strips (5).



The housing which contains the gearing is made of two Large Plates (4) bolted fast to the Angle Girders and fastened at the top by 3½" Strips. The gearing consists of a 5½" Crank (12), on which is mounted an 1½" Gear, and this meshes with a ¾" Pinion mounted on a 4½" Axle Rod (13). The boom is turned by means of the 5½" Crank, on which is mounted a Worm which meshes with the ½" Pinion mounted on a 4½" Axle Rod, on the lower end of which is mounted an 1½" Sprocket. See sectional cut for details of gearing.

The boom is made of two upright 5½" Strips (8) attached to Angle Brackets bolted to the Double Bent Strips (6 and 7). To the lower Double Bent Strip (6) should be bolted two 12½" Strips (10), and these fastened by four 5½" Strips (9) overlapped two holes and bolted to the Double Bent Strip (7). Note that the heads of the bolts must be on the inside of the Double Bent Strips (6 and 7) so as not to interfere with the upright 8" Axle Rod. A Bush Wheel should then be bolted to the Double Bent Strip (6) and the Collar turned down, and through this should be passed an 8" Axle, which forms the axis for the entire boom. Below the 3½" Strip (16) an 1" Sprocket should be mounted on the 8" Axle over which the Chain passes. Be sure and securely fasten the Set Screws in the Sprocket and Bush Wheel.

The Shovel is made of two 5½" Angle Girders (11), to which is attached an Oscillating Rack; the rest of the construction can easily be followed by the detailed cut.

The 4½" Crank mounted in the 12½" Strips (10) is used for unloading the shovel. On the outside of this Crank is fastened a 1" Pulley Wheel which is belted to Pulley (15), which operates the 2" Axle Rod, on which is mounted a ½" Pinion which meshes with the Oscillating Rack. Two Washers should be placed on this Axle between the Oscillating Rack and the 12½" Strips.

This Model has three distinct movements—first, the load is raised by Crank (12), then the boom is turned by means of the front Crank, and the shovel is unloaded by the 4½" Crank. This Model works perfectly and all the movements are true to a real Steam Shovel, and should give the boy a great deal of pleasure and satisfaction when completed.

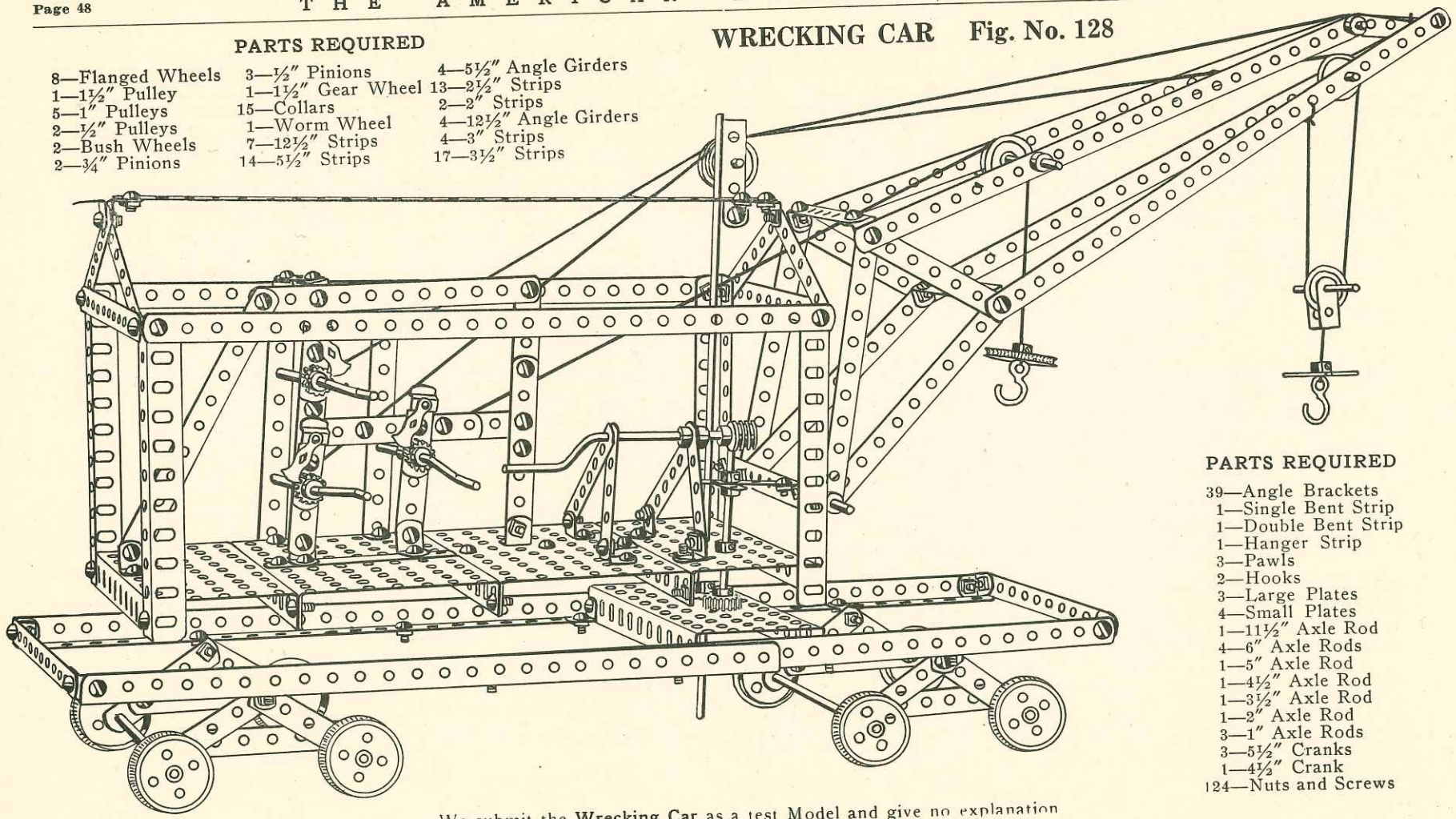
The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

WRECKING CAR Fig. No. 128

PARTS REQUIRED

8—Flanged Wheels
1—1½" Pulley
5—1" Pulleys
2—½" Pulleys
2—Bush Wheels
2—¾" Pinions
3—½" Pinions
1—1½" Gear Wheel
15—Collars
1—Worm Wheel
7—12½" Strips
14—5½" Strips
4—5½" Angle Girders
13—2½" Strips
2—2" Strips
4—12½" Angle Girders
4—3" Strips
17—3½" Strips



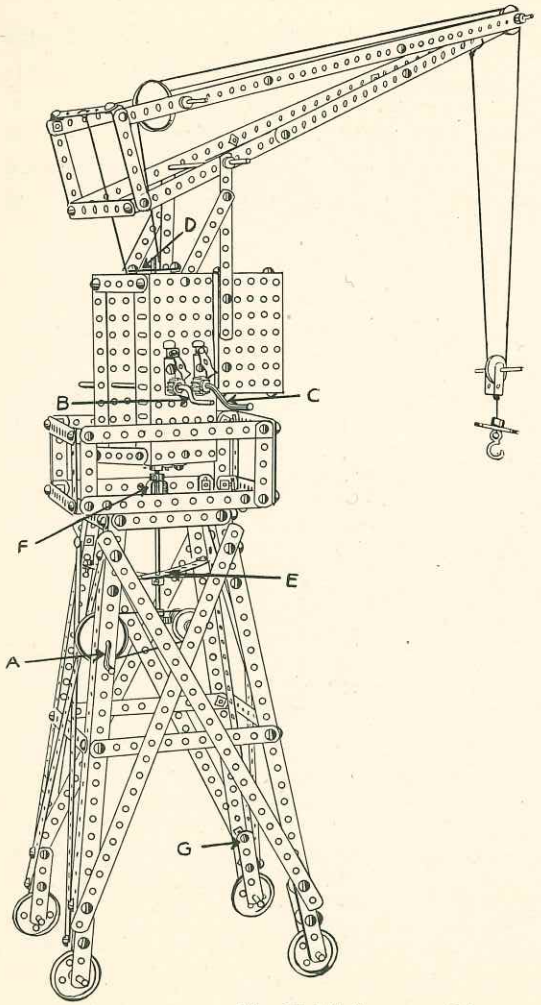
PARTS REQUIRED

39—Angle Brackets
1—Single Bent Strip
1—Double Bent Strip
1—Hanger Strip
3—Pawls
2—Hooks
3—Large Plates
4—Small Plates
1—11½" Axle Rod
4—6" Axle Rods
1—5" Axle Rod
1—4½" Axle Rod
1—3½" Axle Rod
1—2" Axle Rod
3—1" Axle Rods
3—5½" Cranks
1—4½" Crank
124—Nuts and Screws

We submit the **Wrecking Car** as a test Model and give no explanation

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



TRAVELING ROTARY CRANE

"Panama Type"

Fig. No. 129

PARTS REQUIRED

4—Flanged Wheels	15—Collars	34—Angle Brackets	1—5″ Axle Rod
2—1½″ Pulleys	16—12½″ Strips	1—Single Bent Strip	2—4½″ Axle Rods
3—1″ Pulleys	16—5½″ Strips	1—Double Bent Strip	6—2″ Axle Rods
2—Bush Wheels	6—3½″ Strips	1—Hook	1—6½″ Crank
1—¾″ Pinion	4—3″ Strips	2—Large Plates	2—4½″ Cranks
2—½″ Pinions	27—2½″ Strips	4—Small Plates	2—Pawls
1—Worm	4—12½″ Angle Girders	1—11½″ Axle Rod	143—Nuts and Screws

The Traveling Rotary Crane is a type of Crane used during the excavation of the Panama Canal. The construction of this Crane not only permits the Boom to swing from side to side, but also allows the entire Crane to travel back and forth on a track. The lower framework is made of four 12½″ Angle Girders, braced on each side by two 12½″ Strips, with a Small Plate mounted in the top. The 11½″ Axle Rod which forms the axis for the upper Boom is supported by two 5½″ Strips set crossways, marked "E" in the drawing. This Axle Rod passes through a Double Bent Strip attached to the Small Plate at the point marked "F" and passes through a 2½″ Strip at the top, at point marked "D." "A" is a 6½″ Crank, to which is attached a 1½″ Pulley Wheel. This is belted to a 1″ Pulley Wheel, mounted on a 5″ Axle Rod. To this Axle Rod is attached a Worm Wheel which meshes with the ¾″ Pinion, mounted on the lower end of the 11½″ Axle Rod. When this Crank is turned, the entire upper Boom revolves in a circle. "B" is a 4½″ Crank which operates the Boom up and down while Crank "C" controls the load. "G" shows two 2½″ Strips bolted to the Angle Girders between which the Flanged Wheels are mounted.

This makes a very attractive model when completed and furnishes a good example of the type of Crane that was used in the excavation of the Panama Canal.

The Traveling Rotary Crane completes the models that can be built with Outfit No. 6. By purchasing Accessory Outfit No. 6½, 12 additional Models can be made, some of which are shown on the following pages.

For prices of separate parts and Accessory Outfits, see pages 28 and 29.

For special Motors and Countershaft for operating Models by Electricity, see pages 26 and 27.

The Model shown on this page can be made with The American Model Builder Outfit No. 6, or with No. 5 and No. 5½ Combined.

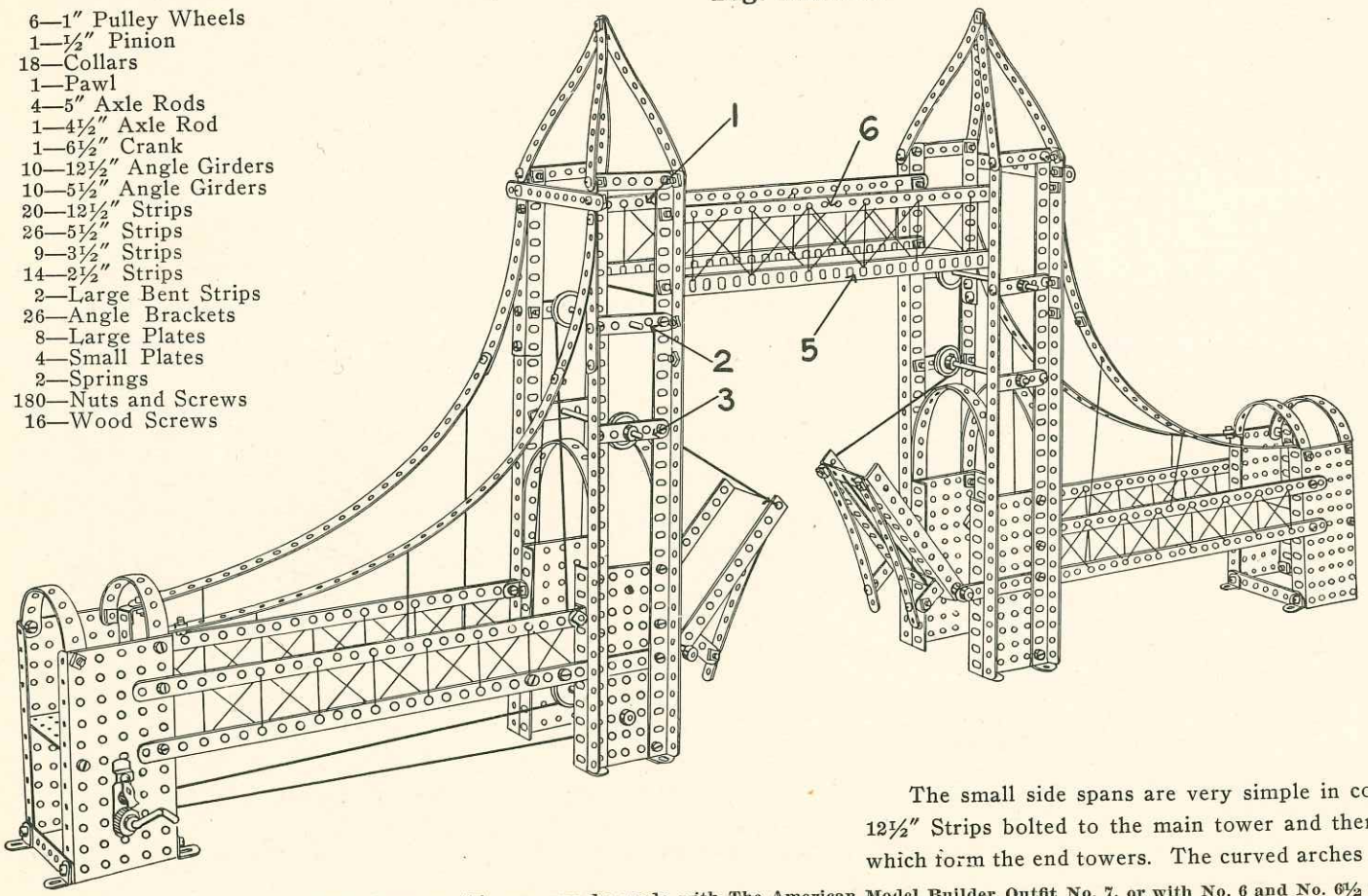
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

LONDON TOWER BRIDGE

Fig. No. 140

PARTS REQUIRED

6—1″ Pulley Wheels
1—½″ Pinion
18—Collars
1—Pawl
4—5″ Axle Rods
1—4½″ Axle Rod
1—6½″ Crank
10—12½″ Angle Girders
10—5½″ Angle Girders
20—12½″ Strips
26—5½″ Strips
9—3½″ Strips
14—2½″ Strips
2—Large Bent Strips
26—Angle Brackets
8—Large Plates
4—Small Plates
2—Springs
180—Nuts and Screws
16—Wood Screws



The London Tower Bridge is an exact duplicate of the famous Tower Bridge crossing the Thames River at London. When completed this makes a very beautiful model.

Begin by building the towers first, which are constructed of four 12½″ Angle Girders, and to these are attached four 5½″ Angle Girders overlapping three holes. These are fastened together at the sides with three 2½″ Strips (1, 2 and 3), and are bolted fast at the bottom to two Large Plates. The two arches are formed of two 12½″ Strips (4) slightly bent and fastened between the Angle Girders and the Large Plates. The crown of these towers is made by bolting four 5½″ Strips together at the top and fastening them at the corner of the tower.

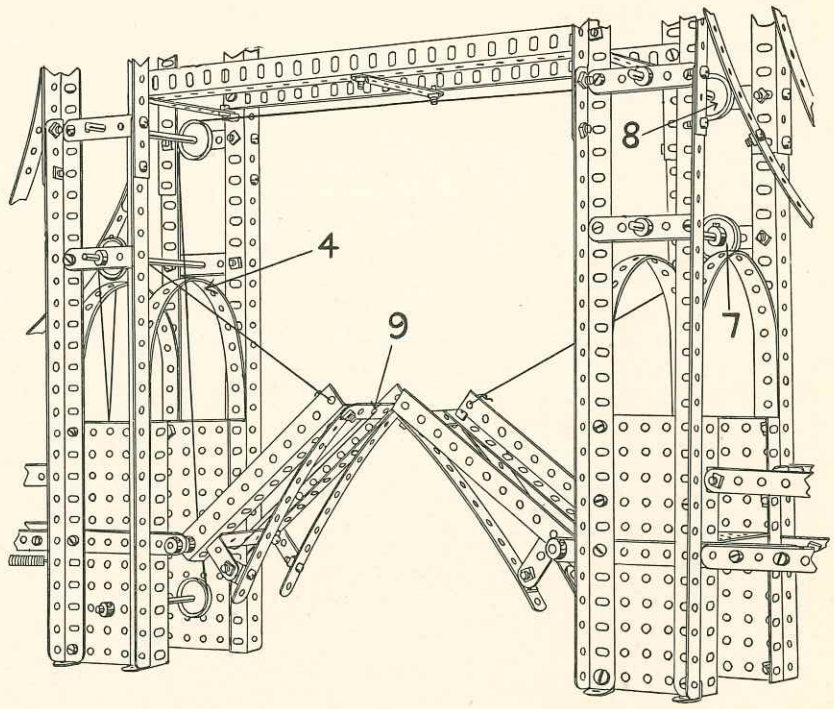
The small side spans are very simple in construction, being made of four 12½″ Strips bolted to the main tower and then fastened to two Large Plates which form the end towers. The curved arches over these end towers are made

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

LONDON TOWER BRIDGE

of two 5½" Strips slightly bent. The upper bridge at the top of the towers is made of two 12½" Angle Girders (5) bolted together with three 3½" Strips, while the upper sides are made of two 12½" Strips (6). You will note that all of the Large Plates used at the base of the towers are supported on the inside by Small Plates. These can be used for the purpose of supporting the track in case it is desirable to run a small engine across the bridge.



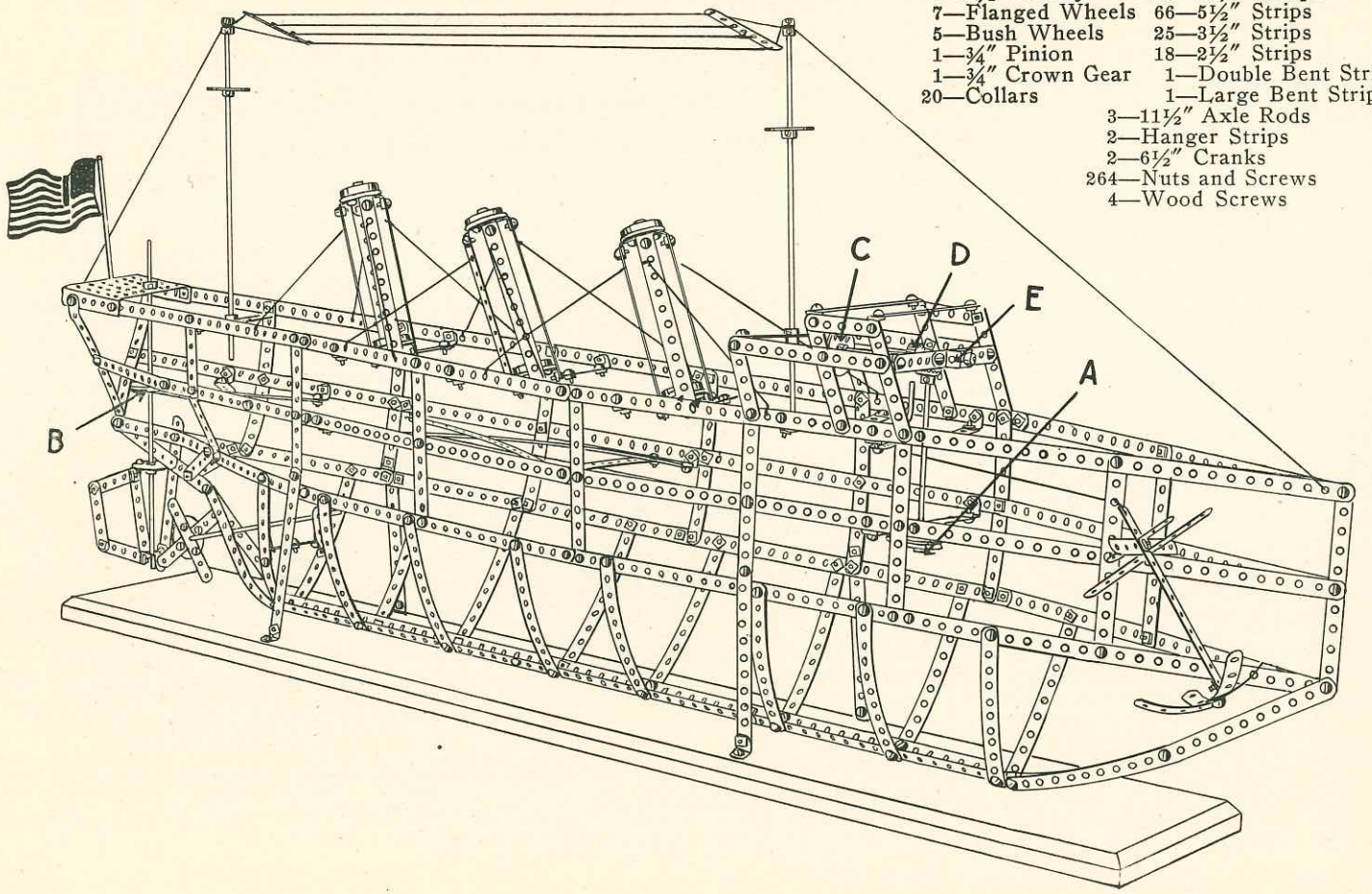
The mechanism for raising and lowering the center lower bridge is very simple. This is accomplished by a cord that is attached to the end of each half of the lower bridge and drawn over the Pulley Wheels and connected at the rear to the Crank. In order to have both halves of the bridge operate at the same time, it is necessary to have the cord attached to the right-hand half, run over two Pulley Wheels (7 and 8) in the tower and then cross over to the left-hand tower down through the Small Plate and back to the Crank. With the aid of the sectional views which we show in this model, no difficulty will be found whatever in the construction of same.

A Spring should be fastened to the 3½" cross Strip on the under side of each approach and to these should be attached a string and this fastened at the ends of the raising sections at point marked (9). Be sure and draw the string tight so as to put a tension on the Spring, as this will cause the moving sections to pull into place readily when the Crank is operated.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

OCEAN LINER Fig. No. 141



PARTS REQUIRED

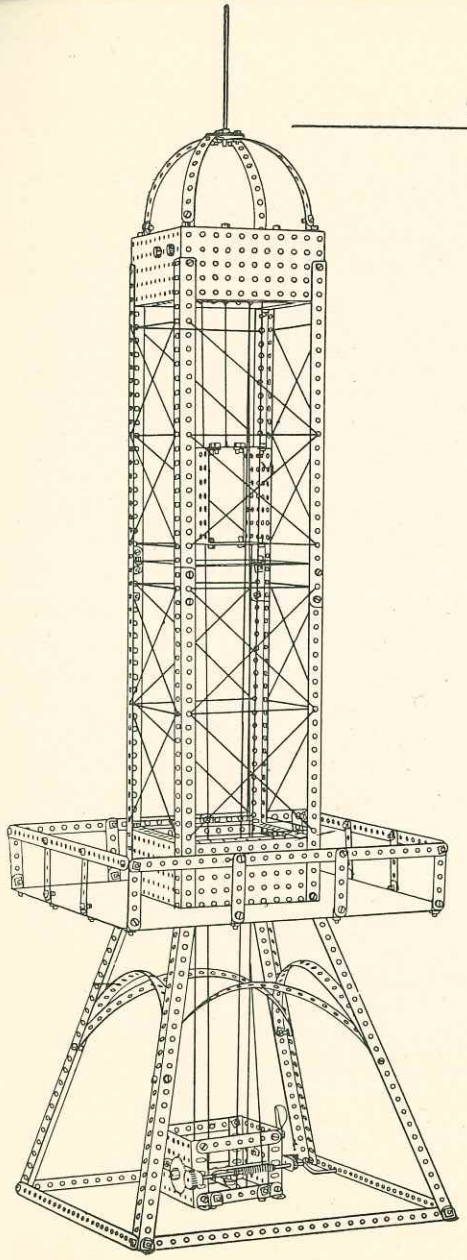
1—1½" Pulley
7—Flanged Wheels
5—Bush Wheels
1—¾" Pinion
1—¾" Crown Gear
20—Collars
26—12½" Strips
66—5½" Strips
25—3½" Strips
18—2½" Strips
1—Double Bent Strip
1—Large Bent Strip
3—11½" Axle Rods
2—Hanger Strips
2—6½" Cranks
264—Nuts and Screws
4—Wood Screws
1—Small Plate
3—12½" Angle Girders
66—Angle Brackets
2—5" Axle Rods
3—6" Axle Rods
1—8" Axle Rod

The Ocean Liner is a most realistic model when completed. The construction is comparatively simple and needs no particular explanation. We have marked several parts and these are as follows:

"C" is a Bush Wheel attached to a 4½" Axle Rod. The bearing for this Wheel is formed by fastening a Double Bent Strip to the 5½" Strip at point marked "E." "D" is a ¾" Pinion mounted on this 4½" Axle Rod and this meshes with the ¾" Crown Gear. At the lower end of the Axle carrying this ¾" Crown Gear is mounted a Flanged Wheel at point marked "A." This Flanged Wheel is belted to the 1½" Pulley Wheel at point marked "B," which operates the rudder from side to side. The tail-piece at the upper rear end of the Boat is formed by bending a 5½" Strip around the Small Plate, in which the flag is mounted.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



EIFFEL TOWER
Fig. No. 142

PARTS REQUIRED

12—12½″ Angle Girders
20—12½″ Strips
10—5½″ Strips
8—3½″ Strips
17—2½″ Strips
44—Angle Brackets
1—Bush Wheel
1—1½″ Gear Wheel
1—¾″ Pinion
1—½″ Pinion
1—Pawl
1—6½″ Crank
2—5″ Axle Rods
2—6″ Axle Rods
2—1 Pulleys
6—Collars
8—Large Plates
2—Small Plates
146—Nuts and Screws

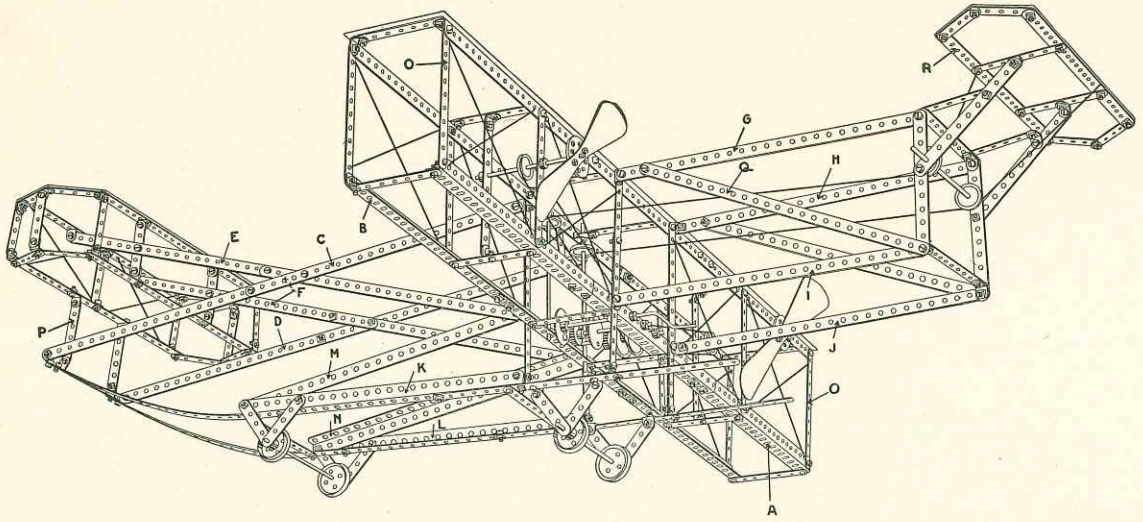
This Model is a miniature of the famous **Eiffel Tower** located at Paris. The construction of this is very simple, and the model itself pleasing in effect.

In beginning the model, first build the lower frame work which is made of four 12½″ Angle Girders, and these are held together at the bottom with four 12½″ bent Strips. At the top of each one of these Angle Girders is mounted an Angle Bracket, and to these are bolted four Large Plates, forming the base for the first platform. The remainder of the upright construction is made of two 12½″ Angle Girders overlapped in the third hole, and these are bolted at the top to four Large Plates and reinforced in the center by four 5½″ Strips. The lower platform is supported by four 12½″ Strips which are bolted to the bottom of the lower Large Plates. The construction of the railing around the plates is very simple and needs no particular instruction. The elevator which moves up and down is made of two Small Plates fastened at the top and bottom with 2½″ Strips. The cage at the bottom from which the elevator starts is made of two Small Plates fastened together at the end with four 3½″ Strips. On either side of the Small Plates is mounted a 3½″ Strip extending over the edge two holes which forms the axis for the shaft which raises and lowers the elevator. The gearing is very simple and is accomplished by means of a 6½″ Crank at the end of which is attached a 1½″ Gear Wheel which meshes with the ¾″ Pinion mounted on the 5″ Axle Rod. The top mechanism consists of the two 6″ Axles, on each of which is mounted a 1″ Pulley. This model can be operated by motor, in which case the Crank should be replaced by a 5″ Axle Rod on the end of which should be mounted a 1½″ Pulley.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

WRIGHT AEROPLANE
Fig. No. 143



PARTS REQUIRED

4—Flanged Wheels
2—1½" Pulleys
4—1" Pulleys
2—Bush Wheels
2—1½" Gear Wheels
2—¾" Pinions
10—Collars
10—12½" Angle Girders
28—12½" Strips
29—5½" Strips
14—3½" Strips
4—3" Strips
26—2½" Strips
65—Angle Brackets
1—8" Axle Rod
4—6" Axle Rods
2—4½" Axle Rods
1—6½" Crank
4—Propeller Blades
213—Nuts and Screws

Through the courtesy of the **Wright Brothers,** we are enabled to reproduce an exact Model of their original Aeroplane. This Model stands 36" wide and 43" long when completed, and will give the builder an excellent idea of Aeroplane construction.

Begin by constructing the center frame which forms the main sail. This is made of six 12½" Angle Girders (A and B) overlapped three holes and fastened at the bottom by six 3½" Strips. Then attach six 5½" upright Strips (O) on either side and to these bolt six 12½" Strips overlapped three holes. These are fastened together at the top with six 3½" Strips, to which the top sail is fastened.

Next construct the frame work which carries the front sail. This is made of eight 12½" Strips (C, D, E and F) crossed in the center. The front sail is made of four 12½" Strips supported by nine upright 2½" Strips. This front sail is then fastened to the frame work made of the 12½" Strips and attached to the glider frame by means of two 2½" Strips (P). The glider frame is made of four 12½" Angle Girders (K, L, M and N), and at the rear of the two lower Girders are fastened two 12½" Strips bolted in the seventh hole. To this frame are then attached the wheels which support the frame while it is rising from the ground. The rear frame work supporting the tail sail is made of six 12½" Strips (G, H, I, J and Q) and supported by four 5½" Strips in the rear. To this frame is then attached the tail sail, which is made of two 12½" Strips (R) and fastened by two 3½" Strips and four 2½" Strips.

In mounting the Axles that carry the Propeller Blades, it will be necessary to fasten a 5½" Strip (S) in the center of the Plane so as to give the Axle Rod two bearings. The 1" Pulley Wheels mounted on the Axles carrying the Propeller Blades, should be belted directly to the two 1½" Pulleys (T).

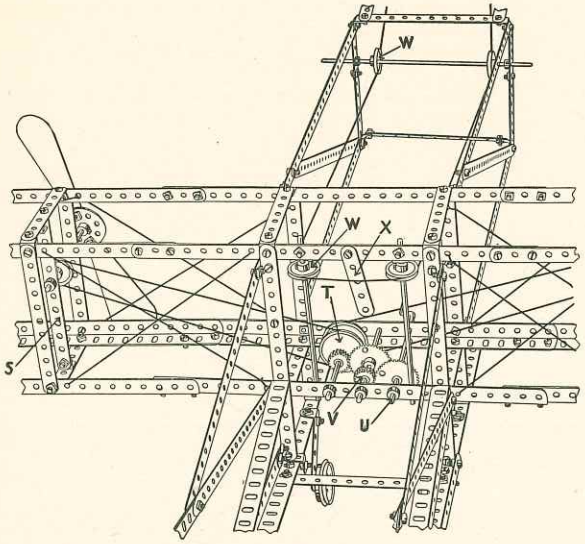
In the sectional view, we clearly show the gearing. The propeller Blades are operated by revolving Crank (U), on which is fastened an 1½" Gear, which meshes with the ¾" Pinion (V) mounted on a 5" Axle. On this same Axle is mounted an 1½" Gear which meshes with the ¾" Pinion attached to the Axle Rod carrying the two 1½" Pulleys (T). By this method of gearing the Propeller Blades revolve six times while the Crank is turned once.

The tail sail is tilted by means of the cords running over the 1" Pulleys (W) and is operated by the 2½" Strip (X), attached to the top of the main frame. This Strip is attached directly above where the operator's seat would be located. Cardboard can be used to represent the sails on the main frame as well as on the front and tail sails, and these can be fastened by screws or paper fasteners.

While this Model may seem somewhat complicated at first sight, it is very simple in construction, and will give any boy a great deal of satisfaction and delight when completed.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



Detail of Aeroplane, Fig. No. 143, Page 54.

OBSERVATION TOWER
Fig. No. 144

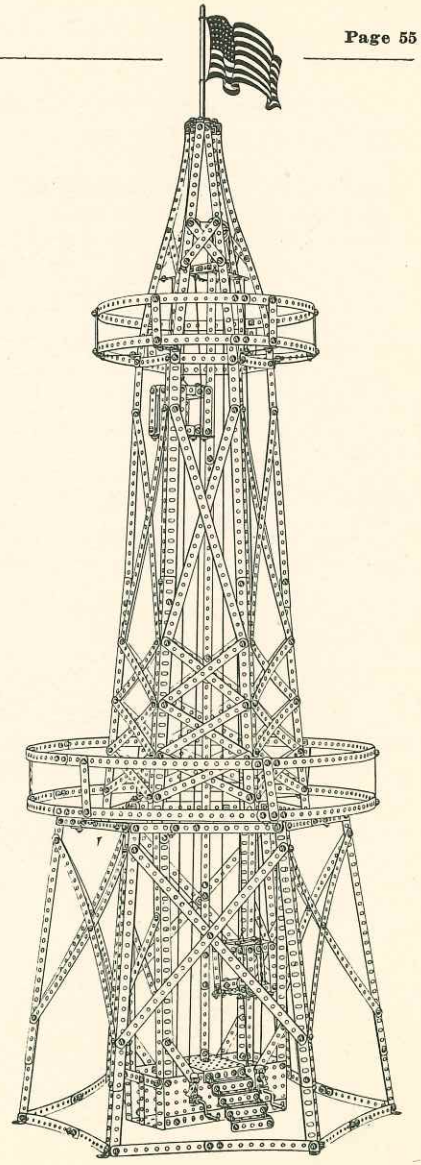
PARTS REQUIRED

4—1″ Pulleys
1—Bush Wheel
3—Collars
49—12½″ Strips
65—5½″ Strips
14—3½″ Strips
17—3″ Strips
53—2½″ Strips
29—2″ Strips
2—Single Bent Strips
24—12½″ Angle Girders
6—5½″ Angle Girders
98—Angle Brackets
8—Small Plates
2—1″ Axle Rods
2—6½″ Cranks
2—½″ Pinions
2—Pawls
476—Nuts and Screws

The Observation Tower, when completed, stands 4 ft. 6 in. tall. In constructing this model, the lower base should be made first. This is made of 12½″ and 5½″ Angle Girders held together by 12½″ Strips. The first balcony is made of ten 12½″ Strips built in two circles and fastened to the lower platform at the corners with six 2″ Strips. The main upright tower is made of twelve 12½″ Angle Girders, braced by 12½″ and 5½″ Strips, as shown in the cut. The upper balcony is made of six 12½″ Strips, fastened to the main tower by six 2″ Strips. The upper peak of the tower is made of six 12½″ Strips bolted to Angle Brackets mounted on a Bush Wheel in the peak. In the upper part of this Bush Wheel is mounted a flag-staff and held securely by the Set Screws.

The two Elevators are operated by two 6½″ Cranks, located at the sides of the stairs. One continuous cable should be attached from car to car and passed over the two 1″ Pulley Wheels, mounted in the two Single Bent Strips at the top. The two guide ropes should also be stretched on either side of these cars and passed through the Angle Brackets, so as to guide them in the up and down movement.

Through the center of this Tower are mounted 12½″ Strips connected together, which run from the top of the Pulley Wheels to the Small Plate mounted on the top of the Power Plant. These Strips prevent the cars from coming in contact with each other when passing in their up and down movements.



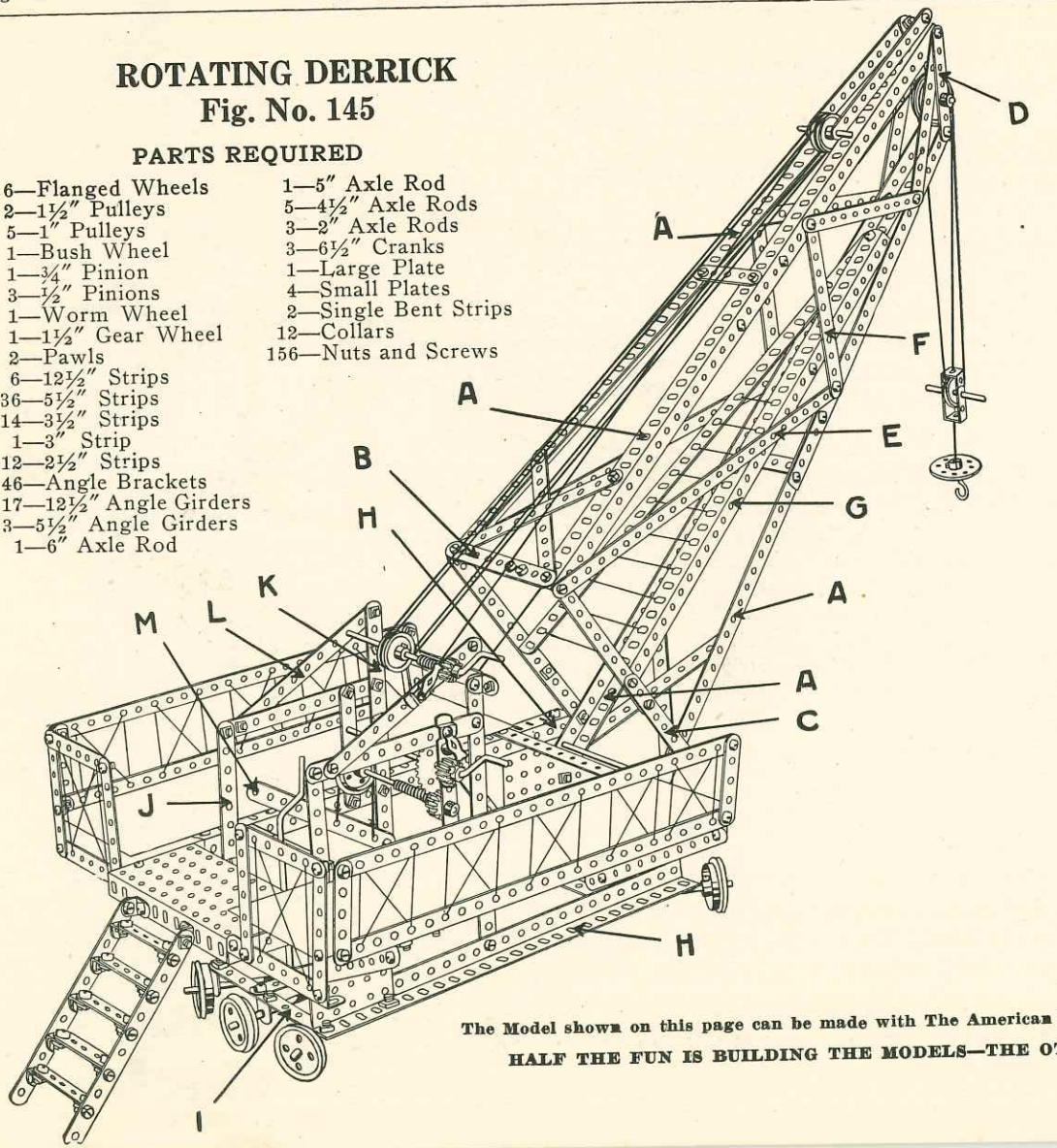
The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

ROTATING DERRICK
Fig. No. 145

PARTS REQUIRED

6—Flanged Wheels
2—1½" Pulleys
5—1" Pulleys
1—Bush Wheel
1—¾" Pinion
3—½" Pinions
1—Worm Wheel
1—1½" Gear Wheel
2—Pawls
6—12½" Strips
36—5½" Strips
14—3½" Strips
1—3" Strip
12—2½" Strips
46—Angle Brackets
17—12½" Angle Girders
3—5½" Angle Girders
1—6" Axle Rod
1—5" Axle Rod
5—4½" Axle Rods
3—2" Axle Rods
3—6½" Cranks
1—Large Plate
4—Small Plates
2—Single Bent Strips
12—Collars
156—Nuts and Screws



This Rotating Derrick is used a great deal by railroads in bridge construction, and is designed for raising extremely heavy loads.

In beginning this Model, build the boom first. The outside frame of this is constructed of eight 12½" Angle Girders (A), those for the upper frame overlapping six holes and those for the lower frame five holes. These Girders are bolted together at the front end and separated at the rear by two 3½" Strips (B) overlapped five holes. The upper and lower frames should then be fastened at the rear by two 5½" Strips (C) overlapped three holes and at the front by a 3½" Strip (D), and braced by a 12½" diagonal Strip (E) and three 5½" diagonal Strips (F).

The Ladder used on the inside of the boom is made of two 12½" and two 5½" Angle Girders (G) bolted together and overlapped three holes. The end of this ladder is then bolted fast to the 5½" Strips (C).

Next, construct the main lower frame, which is made of four 12½" Angle Girders (H), at each end of which is bolted an upright Small Plate, as shown in the sectional cut, and these are bolted together at

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

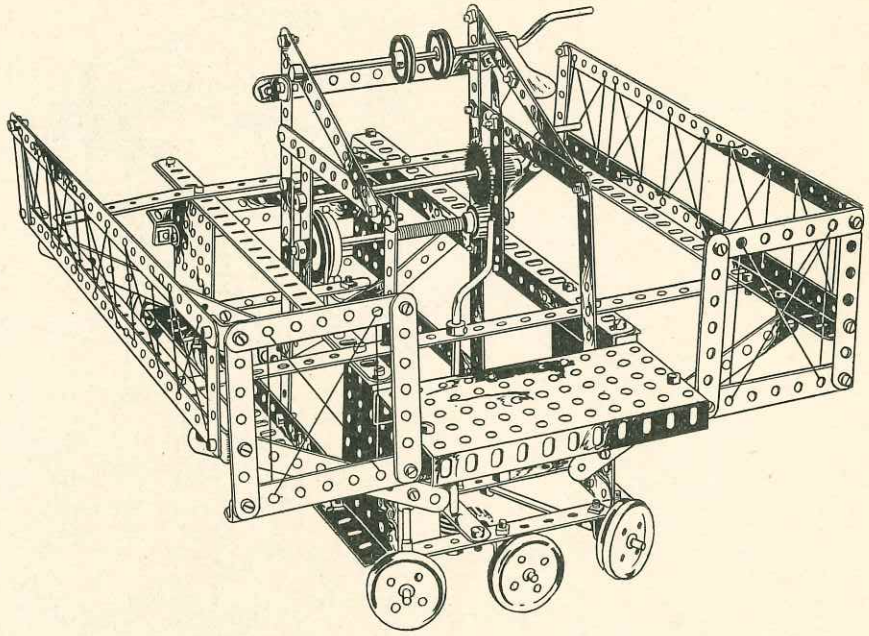
ROTATING DERRICK

the bottom by four 5½″ Strips (I). These Strips support the Flanged Wheels, which you will note are set at an angle so that the crane will revolve in a complete circle.

The frame supporting the gearing should be made next of four 5½″ Strips (J) bolted to the Angle Girders. To the front Strips should be bolted a 3½″ Strip (K) overlapped three holes and two 5½″ diagonal Strips (L) bolted at the sides. The gearing operating the load is constructed of a 6½″ Crank, on which is mounted an 1½″ Gear which meshes with a ¾″ Pinion, as shown in the sectional cut. On the axle with the ¾″ Pinion should be fastened a Flanged Wheel, over which a string is passed and attached to a 5½″ Strip (M) which forms a brake. The upper 6½″ Crank operates the boom, and to this is attached two 1″ Pulleys over which the cord passes.

The Landings on either side of the main frame are made of two 12½″ Angle Girders and two 12½″ Strips, and are supported by two 12½″ cross Strips and four diagonal 5½″ Strips. (See sectional cut.)

The string operating the boom should be attached at the upper end of the Angle Girder forming the top of the boom, then passed over the lower Pulley on the 6½″ Crank, then over the Pulley at the top of the boom, then down over the second Pulley on the Crank, then over the second Pulley at the top of the boom, and then fastened to the 6½″ Crank.



The string operating the load should be fastened to the Single Bent Strip on the tackle, then passed over one of the 1½″ Pulleys mounted in the front part of the boom, then over the 1″ Pulley in the tackle and then over the second 1½″ Pulley and carried down to the Axle on which the ¾″ Pinion is mounted.

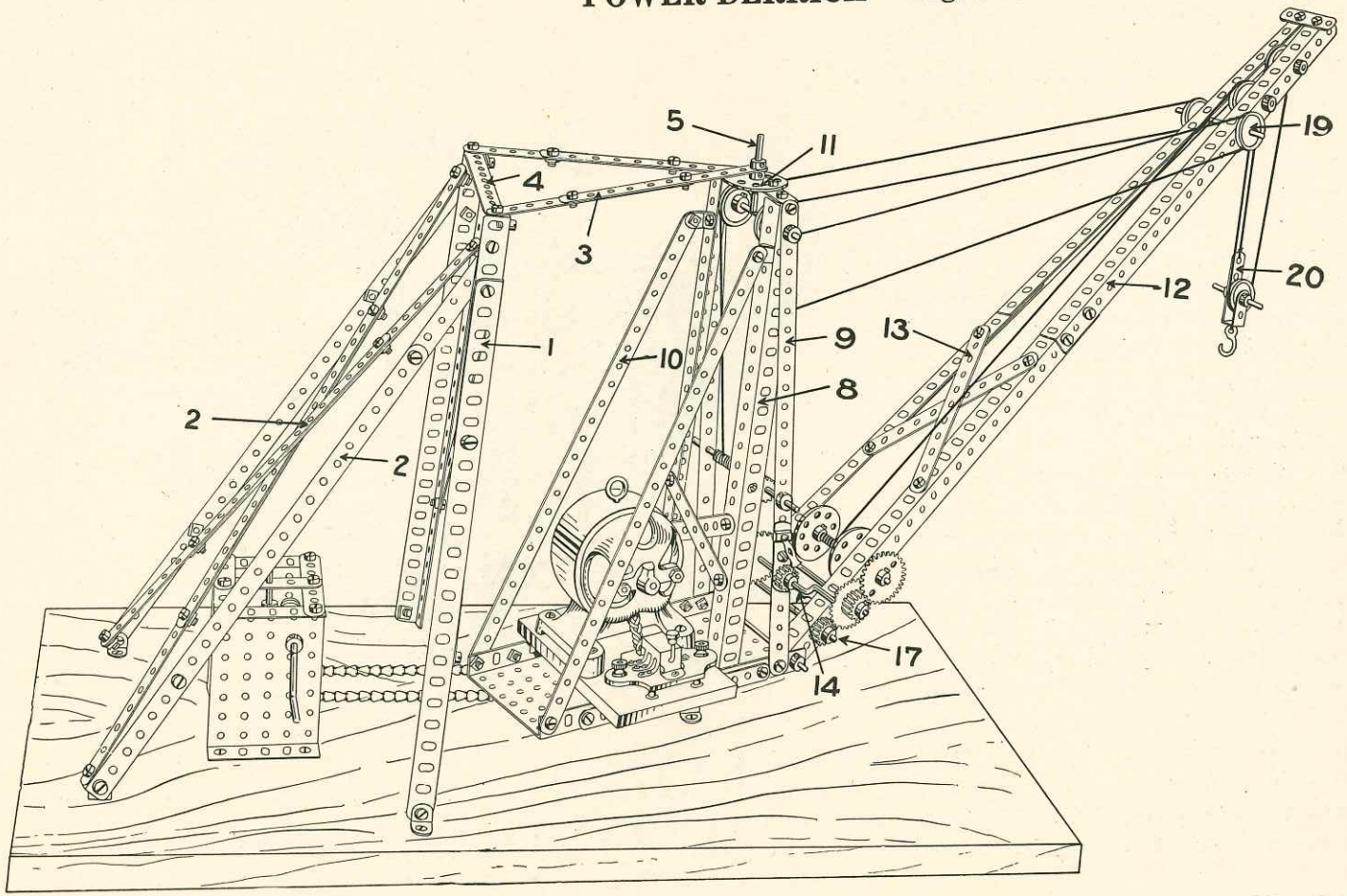
This method of belting greatly multiplies the weight that can be raised from the Crank, as explained in the Mechanical Demonstration on page 74.

This will be found an extremely interesting Model, and the builder will be fully repaid for any time spent on the study of its details.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

POWER DERRICK Fig. No. 146



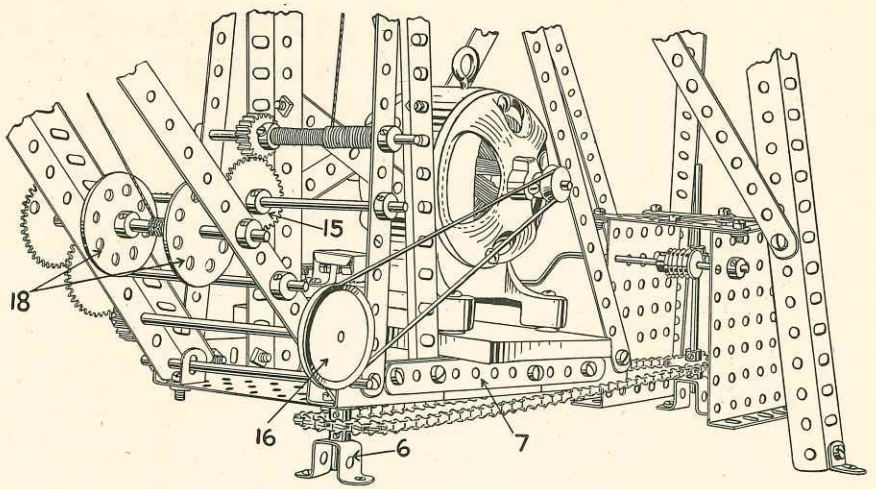
PARTS REQUIRED

2—5½" Angle Girders
8—12½" Angle Girders
14—12½" Strips
9—5½" Strips
4—3½" Strips
2—2½" Strips
1—2" Strip
1—Hanger Strip
5—Small Plates
2—Double Bent Strips
1—5½" Crank
1—6½" Crank
4—5" Axles
2—4½" Axles
2—3½" Axles
5—2" Axles
2—1½" Sprockets
3—1½" Gears
3—¾" Pinions
2—½" Pinions
1—Worm Wheel
4—Bush Wheels
2—1½" Pulleys
6—1" Pulleys
2—½" Pulleys
15—Collars
16—Angle Brackets
1—Hook
1—Chain
74—Nuts and Screws
12—Wood Screws

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

POWER DERRICK



The Power Derrick is one of the most interesting Models shown and embodies many good principles of gearing and Pulley Belting.

The rear frame work should be made first of two upright 12½" Angle Girders (1), at the top of which should be bolted two 5½" Angle Girders overlapped eight holes. These Girders should then be braced by two 12½" diagonal Strips bolted in the top hole and the eighth hole from the bottom. Then attach the rear bracing, which is made of six 12½" Strips (2) overlapped. This frame should then be fastened to a board by Wood Screws. At the top of this frame should be fastened four 5½" Strips (3) overlapped seven holes. Then measure the distance from the top of the rear frame to the Axle Rod (5) and locate the Double Bent Strip (6) shown in the sectional cut and fasten this to the board with two Wood Screws.

Next construct the upright frame by using as a base three Small Plates with the flanges turned up and held together by 5½" Strips (7) bolted at the sides. To this base should then be bolted two upright 12½" Angle Girders (8) and braced by four 12½" Strips (9 and 10) and held together at the top by a 2½" Strip. To this Strip should be bolted the Bush Wheel (11), through which the 2" Axle Rod (5) passes. Then mount the frame on a 2" Axle Rod, which passes through a Bush Wheel mounted on the under side of the Small Plate and through the Double Bent Strip (6). On this 2" Axle should also be mounted an 1½" Sprocket and the Set Screws in both the Bush Wheel and Sprocket securely fastened, as it is on this Axle that the entire Derrick revolves.

Next construct the boom of four 12½" Angle Girders (12) fastened at the end with a 2" Strip and braced in the center with two 5½" diagonal Strips (13). This boom should then be attached to the Small Plate by means of a 4½" Axle.

The boom is operated by the 6½" Crank (14), on which is mounted a ½" Pinion which engages the Pawl, also an 1½" Gear (15) which meshes with a ¾" Pinion mounted on a 5" Axle.

The gearing which operates the tackle consists of three 5½" Axles. On the lower Axle should be mounted the 1½" Pulley (16), to which the Motor is belted, and on the opposite side the ¾" Pinion (17) which meshes with an 1½" Gear on the second Axle. To this Axle should also be attached a ¾" Pinion which meshes with the 1½" Gear on the third Axle. On the third Axle should also be mounted the two Bush Wheels (18) which form the Windlass.

In belting up the boom, the string should be fastened to the upright Angle Girder (8) and passed over the 1" Pulley, then back over the 1" Pulley in the upright frame, then over the other Pulley on the side of the boom, then over the second Pulley in the upright frame and fastened to the Axle Rod.

The string on the tackle should be tied to the Hanger Strip (20), passed over the front 1" Pulley, then down over the 1" Pulley in the tackle, then over the second 1" Pulley and fastened to the windlass.

The Derrick is turned by means of the Worm mounted on a 5½" Crank, which meshes with a ½" Pinion mounted on a 4½" Axle, at the lower end of which is attached a 1½" Sprocket over which the Chain passes.

You will note by this method of gearing that the speed of the Motor is reduced one-fourth in addition to the reduction of speed obtained by belting the Motor to the 1½" Pulley. See Mechanical Demonstration on page 73.

This Model is true in all its dimensions, and when completed forms an interesting study. This makes the best Model of Derricks that we show, and every boy should try to build this one.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

FERRIS WHEEL
Fig. No. 147

PARTS REQUIRED

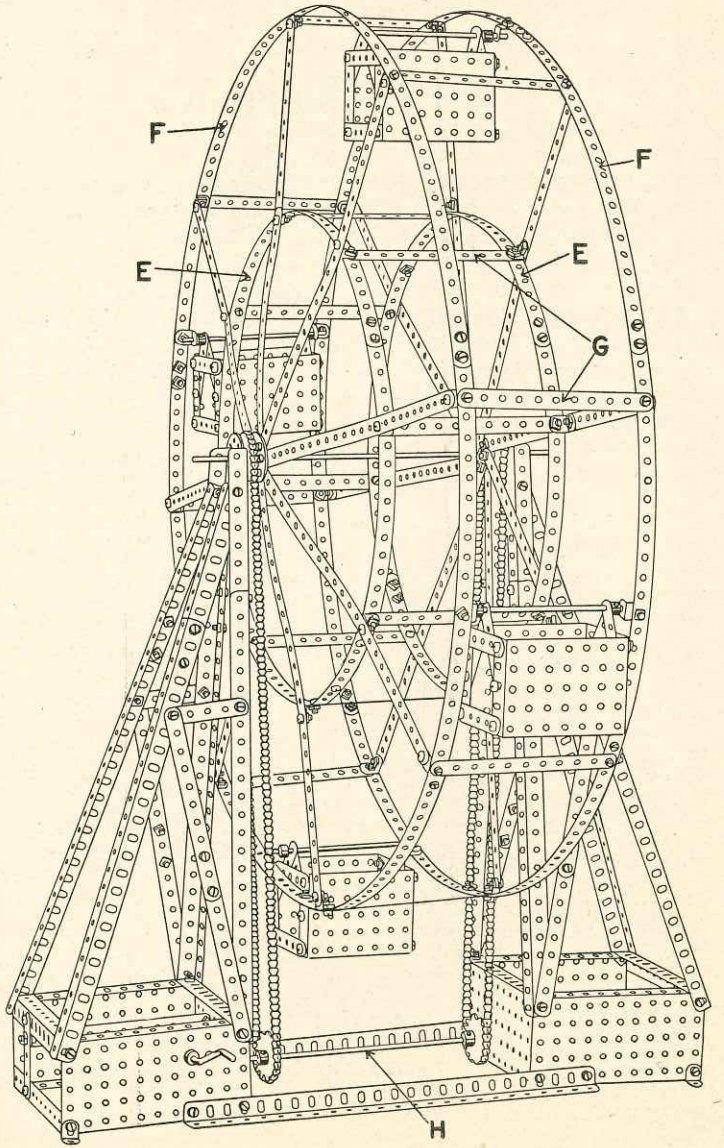
38—12½″ Strips
25—5½″ Strips
37—2½″ Strips
10—12½″ Angle Girders
12—5½″ Angle Girders
46—Angle Brackets
2—11½″ Axle Rods
1—6″ Axle Rod
4—5″ Axle Rods
1—6½″ Crank
2—1½″ Sprocket Wheels
2—1″ Sprocket Wheels
2—Chains
4—Bush Wheels
2—¾″ Pinions
1—1½″ Gear Wheel
1—1½″ Crown Gear
6—Large Plates
8—Small Plates
13—Collars
255—Nuts and Screws

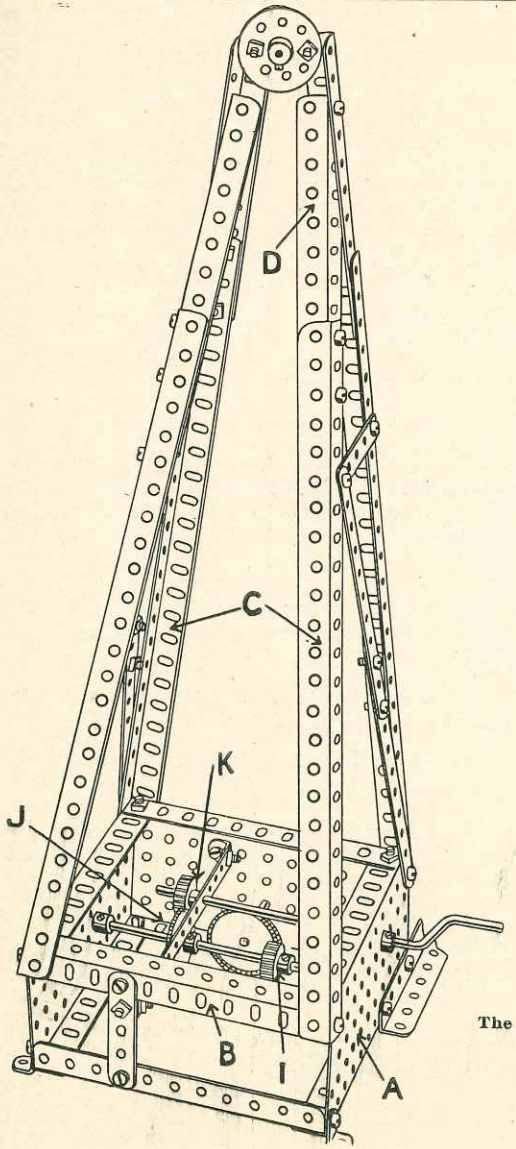
The Ferris Wheel is an exact duplicate of the one used at the Chicago Exposition and will prove to be one of the most interesting models that can be built with any outfit. The action is perfect and it can easily be operated by hand or with a motor.

In constructing this Model, the two supporting towers should be built first. These are made of three Large Rectangular Plates (A) bolted together at two ends and fastened at the other end with a 5½″ Angle Girder (B) at the top and bottom. Next construct the uprights, which are made of four 12½″ Angle Girders (C) and four 5½″ Angle Girders (D). At the top of these is fastened a Bush Wheel through which the Axle of the Wheel passes. They are then braced on the sides with two 5½″ Strips and a 2½″ Strip, as shown in the cut. Refer to the sectional view of this supporting tower, which also shows the gearing that operates the wheel.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.





FERRIS WHEEL

No difficulty will be found in building the wheel itself if the instructions given here are closely followed. First, take a 1½″ Bush Wheel and fasten to this eight 12½″ Strips. Care should be taken to leave the Collar of the Bush Wheel on the outside. Then fasten an Angle Bracket in the fifteenth hole as well as the top hole of each of these 12½″ Strips. The circumference of the Small Wheel (E) is made of four 12½″ Strips fastened together. These are then fastened to the lower Angle Brackets on the 12½″ Strips and bolted in every twelfth hole. The outside diameter of the Wheel (F) is made of seven 12½″ Strips all bolted together and fastened to the Angle Brackets at the top of the 12½″ Strips. These should be bolted in every twenty-first hole. A duplicate of this one side should then be made and the two sides then fastened together with sixteen 5½″ Strips (G).

The cars are made of two Small Rectangular Plates fastened together at each end with two 2½″ Strips. Four 2½″ Strips are then bolted to the sides diagonally and through these are passed a 5″ Axle Rod with a Collar on either side. These are then fastened to the outside diameter of the wheel and secured by two Angle Brackets through which the 5″ Axle Rod passes. When the wheel is completed, place it between the two supporting towers, passing a 11½″ Axle through the four Bush Wheels and inserting a 1½″ Sprocket Wheel between the two Bush Wheels on either side. The Set Screw in the Sprocket Wheels should be securely fastened.

The gearing consists of an 11½″ Axle (H) extending through the Large Plates at the bottom of the towers on which are mounted two 1″ Sprockets. On the left end of this Axle should be attached an 1½″ Crown Gear which meshes with the ¾″ Pinion (I) mounted an a 6″ Axle. On this same Axle should be mounted an 1½″ Gear (J) which meshes with the ¾″ Pinion (K) mounted on the 5½″ Axle. The chains should then be fastened around the Sprocket Wheels. Should it be desired to operate this Model by Electricity, an 1½″ Pulley should be attached to the Crank on the outside of the Large Plate.

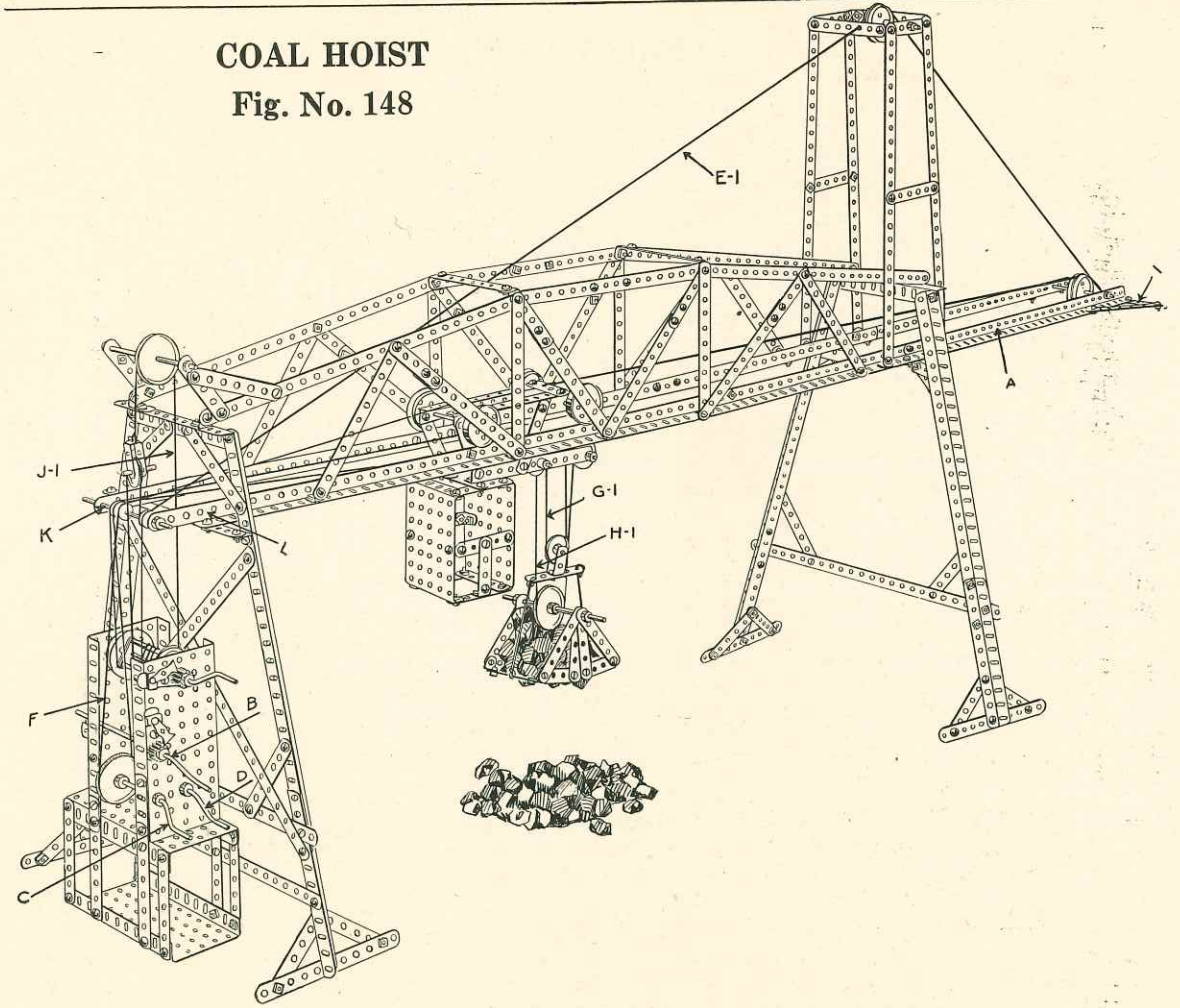
The Ferris Wheel makes a most excellent working Model and the principles of structural bracing are clearly demonstrated all through the Model. When completed, this Model stands three feet high, and is symmetrical and well proportioned.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

COAL HOIST

Fig. No. 148



PARTS REQUIRED

8—Flanged Wheels
3—1½" Pulleys
6—1" Pulleys
5—½" Pulleys
2—Bush Wheels
2—½" Pinions
19—Collars
13—12½" Strips
34—5½" Strips
16—3½" Strips
18—3" Strips
32—2½" Strips
10—2" Strips
12—12½" Angle Girders
8—5½" Angle Girders
2—Single Bent Strips
2—Pawls
4—Large Plates
2—Small Plates
4—4½" Axle Rods
3—3½" Axle Rods
6—2" Axle Rods
2—1" Axle Rods
1—6½" Crank
3—5½" Cranks
46—Angle Brackets
260—Nuts and Screws

The Coal Hoist is one of the most interesting models shown in the book. It can be seen in operation at almost any dock where vessels are coaled from shore. It has four distinct movements:

First—The entire carriage with cage and grab bucket moves back and forth along the track.

Second—The Grab Bucket can be raised or lowered at any point.

Third—The Grab Bucket can be opened and closed at any point.

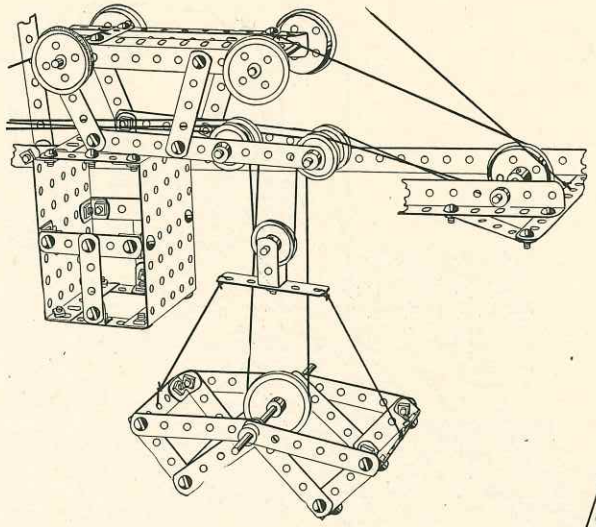
Fourth—The overhanging Runway at the extreme right can be raised or lowered to admit docking vessels.

The track is constructed of 12½" Angle Girders, bolted together and should be 3" apart. The upper frame work should be bolted

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

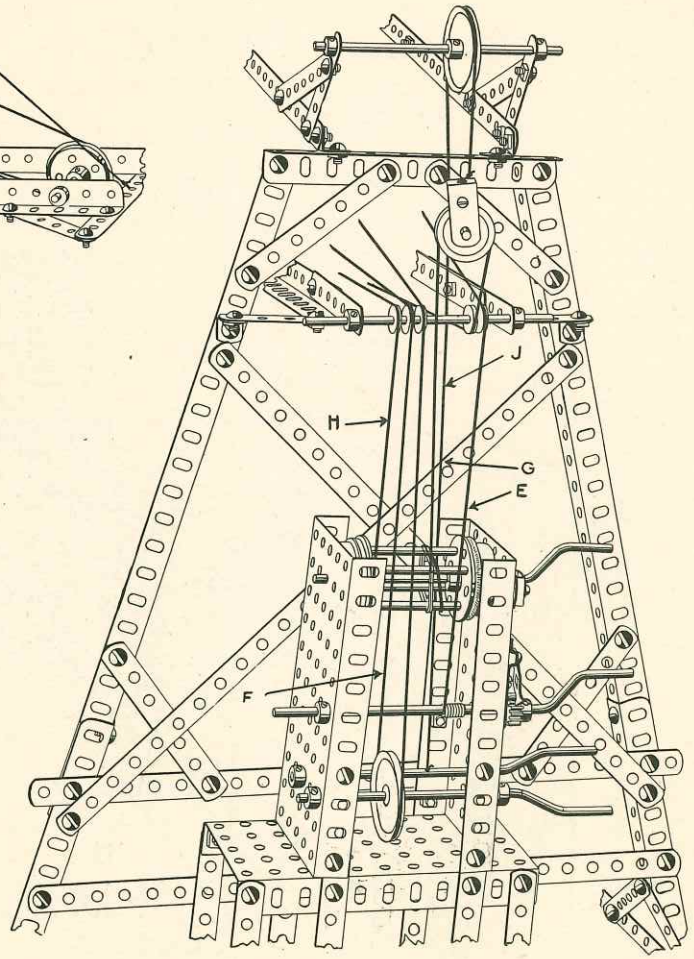
COAL HOIST



to the outside Flanges of the Girders, so as not to interfere with the movement of the carriage back and forth. This is also the case with the tower at the right-hand end of the model.

In the small detail cut, we show the construction of the carriage and Grab Bucket. In the large detail cut, we show the arrangement of the various cables and the Cranks and Windlass, on which they wind.

The overhanging Runway is operated by cord "E" and "E"-1, and is attached to Crank "B." The carriage is operated back and forth by cord "F." This cord is fastened to one end of the carriage, passes over the ½" Pulley Wheel, then over the 1½" Pulley Wheel mounted on Crank "C," then up over the ½" Pulley around the 1½" Flanged Wheel mounted in the extreme end of the overhanging Runway, then fastened to the other end of the carriage.



The Grab Bucket is operated by two cords marked "G" and "G"-1 and "H" and "H"-1. Both wind on the Windlass. "G" passes over the 1" Pulley Wheel, mounted in the Single Bent Strip, then over the ½" Pulley, then over the 1" Pulley Wheel in the carriage and around the 1" Pulley Wheel, mounted in the top of the Grab Bucket, then over the 1" Pulley Wheel in the carriage and fastened in the 5½" Strip at the end of the overhanging Runway. Cord "H" and "H"-1 passes over the ½" Pulley Wheel, then over the 1" Pulley Wheel in the carriage, then around the 1½" Pulley Wheel in the Grab Bucket, over the 1" Pulley Wheel in the carriage and fastened in the 5½" Strip at the extreme end of the overhanging Runway.

The Grab Bucket is opened and closed by Crank "D." To this cord is attached "J" and "J"-1, which passes over the 1½" Pulley Wheel and is fastened in the Single Bent Strip. By operating this Crank, it shortens and lengthens the Cord at the top of the Grab Bucket, opening and closing same.

"L" represents two 3½" Strips, bolted on the Angle Girder to support Shaft "K," on which the ½" Pulley Wheels are mounted.

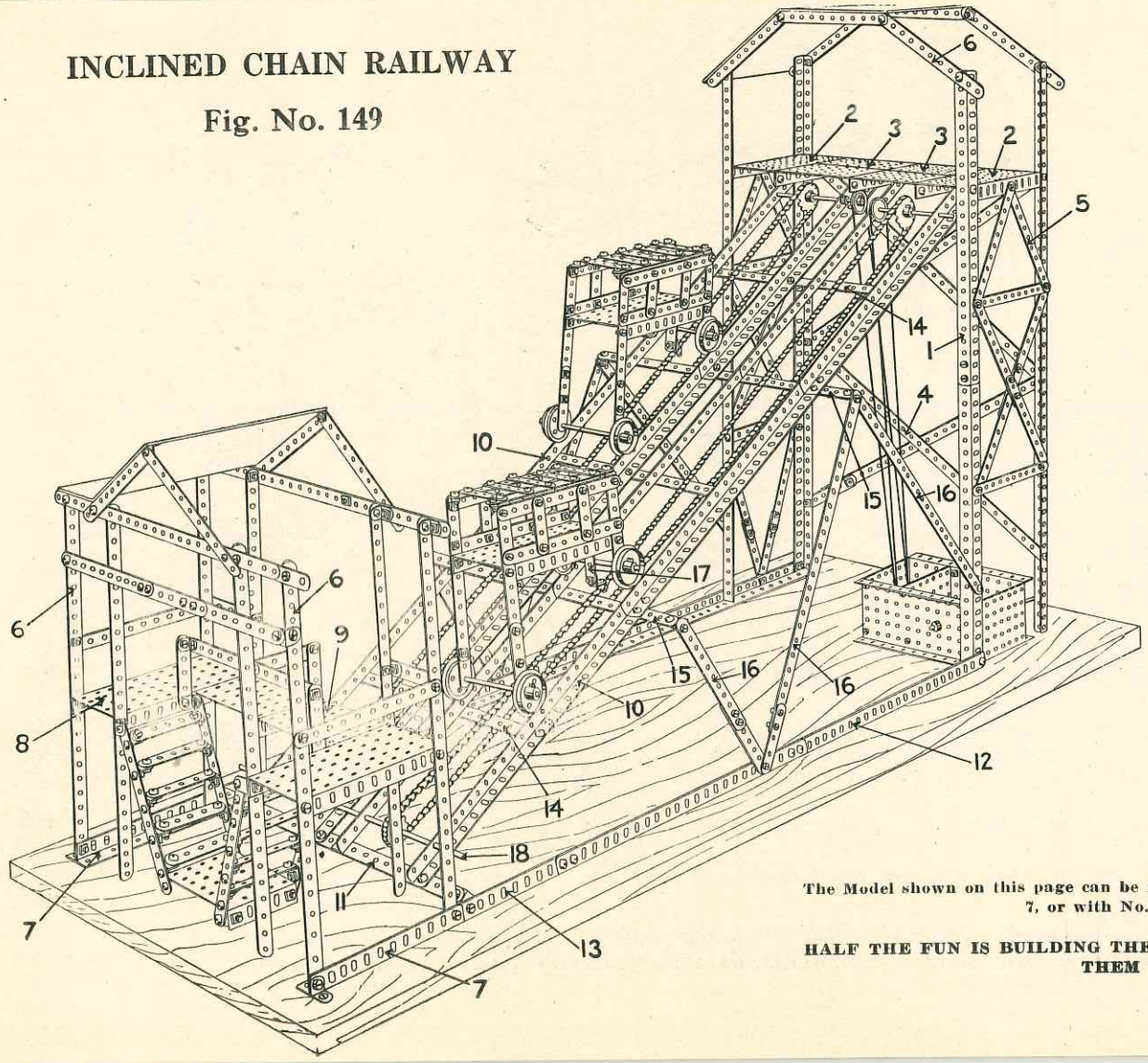
When completed this is, beyond a doubt, the most realistic model that is shown in the book.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

INCLINED CHAIN RAILWAY

Fig. No. 149



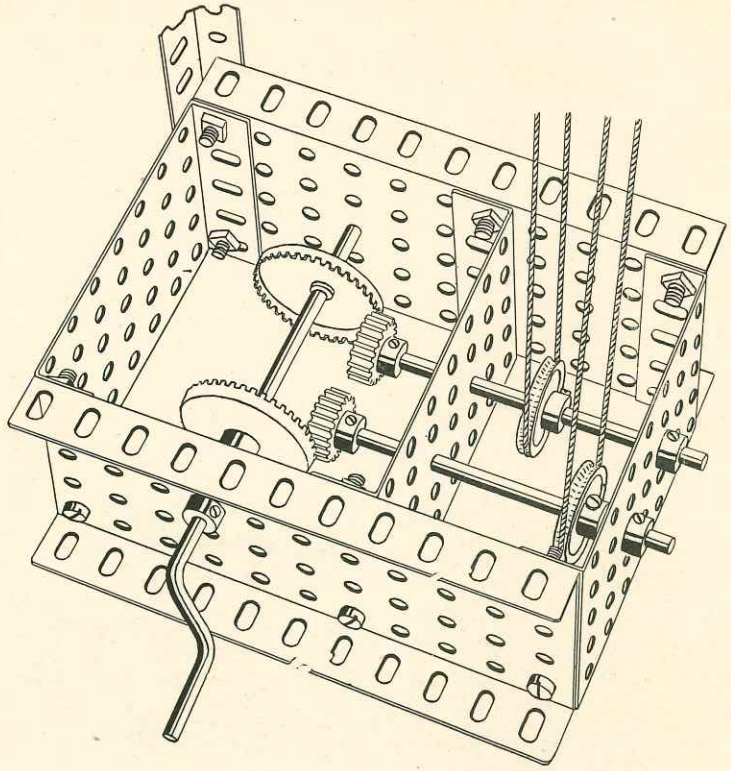
PARTS REQUIRED

24—12½″ Angle Girders
5—5½″ Angle Girders
21—12½″ Strips
50—5½″ Strips
9—3½″ Strips
24—2½″ Strips
8—2″ Strips
2—Hanger Strips
8—Large Plates
10—Small Plates
1—11½″ Axle Rod
4—4½″ Axle Rods
4—5″ Axle Rods
1—6½″ Crank
2—1½″ Crown Gears
2—¾″ Pinions
4—1″ Pulley Wheels
8—Flanged Wheels
2—1½″ Sprockets
2—1″ Sprockets
2—Chains
12—Collars
70—Angle Brackets
350—Nuts and Screws

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

INCLINED CHAIN RAILWAY



This Model is a duplicate of the Price Hill Incline in Cincinnati which is used for transporting passengers and vehicles from the bottom to the top of the hill. These inclines are used in a great many cities where it is necessary to mount exceptionally steep hills.

First, erect the rear tower, which is made of eight 12½" Angle Girders (1) overlapped two holes. In the tenth hole from the top of these should be fastened the upper platform, made of two Large Plates (2) and four Small Plates (3), all bolted together.

The rear of the platform should be braced with 12½" diagonal Strips (4) and the sides with 5½" diagonal Strips (5). The roof truss is made of six 5½" Strips (6), and a stiff cardboard should be cut and fastened to these to form the roof covering.

The lower loading platform is made of eight upright 12½" Strips (6), the outside ones being held together at the bottom with the 5½" Angle Girders (7). The platform is made of two Large Plates (8) and two Small Plates (9) bolted together and fastened in the eleventh hole from the bottom of the upright 12½" Strips (6). The stairways and landings as well as the roof frame can easily be made from the cut.

The four inclined tracks should next be made. These are constructed of three 12½" Angle Girders (10) overlapped two holes and bolted at the top to the under side of plates (2 and 3) and fastened at the bottom to two 5½" Strips (11) overlapped. The loading platform and the rear tower should then be fastened together by two 12½" Angle Girders (12), and one 5½" Angle Girder (13) overlapped two holes.

The track should then be stiffened by six 5½" cross Strips (14) and two 12½" cross Strips (15), and to these should be attached the diagonal braces (16).

The cars should be constructed of a Large Plate, to the front end of which should be attached two 3½" Strips, and to the rear end a 5½" and 2½" Strip overlapped two holes. A Hanger Strip should be attached on the under side of the Large Plate in front and the lower end of this fastened to the chain by means of an Angle Bracket.

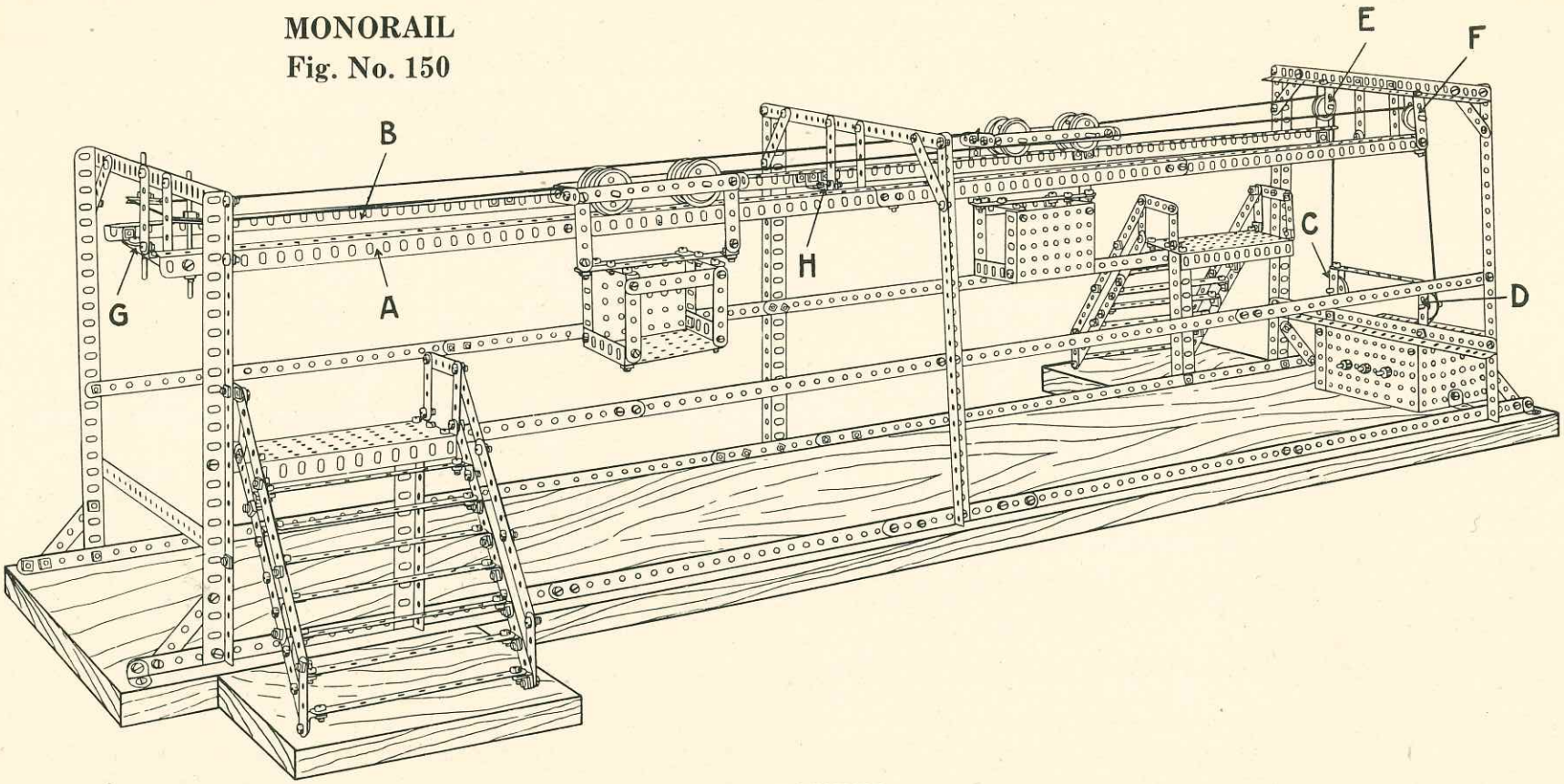
The gearing is comparatively simple and is clearly shown in the detailed cut. The Sprocket Wheels at the top should be fastened to the Axle Rod, while those at the bottom mounted on the 11½" Axle (18) should run loose as they revolve in opposite directions.

When this Model is completed, it stands 2½ feet high and 3½ feet long, and is most realistic in all its workings. If a Motor is used for its operation, be sure and use a Countershaft between the Motor and Model so as to reduce the speed and increase the power.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

MONORAIL
Fig. No. 150



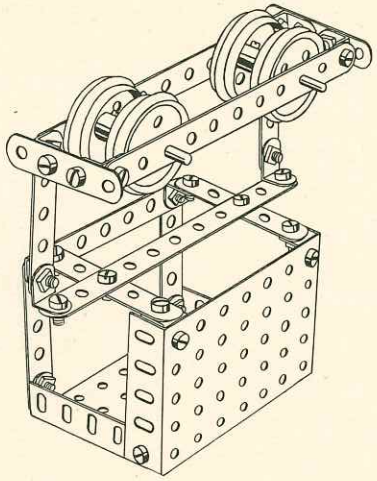
PARTS REQUIRED

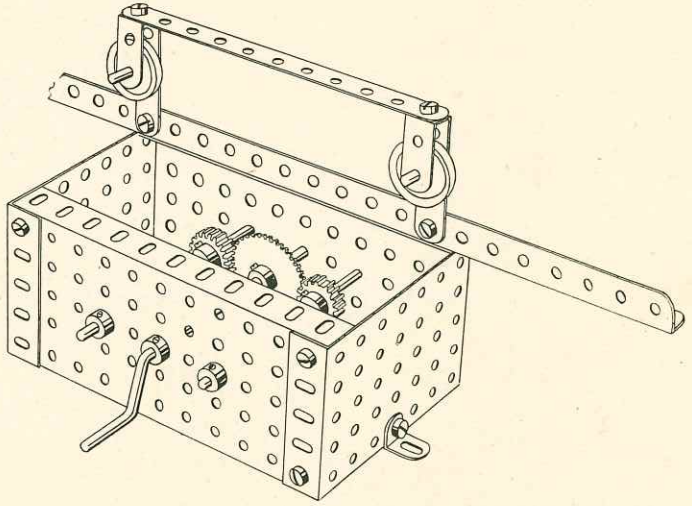
18—12½″ Angle Girders
2—5½″ Angle Girders
18—12½″ Strips
42—5½″ Strips
2—3½″ Strips
2—3″ Strips
30—2½″ Strips
16—2″ Strips
4—Hanger Strips
4—Large Plates
6—Small Plates
2—4½″ Axle Rods
2—3½″ Axle Rods
4—2″ Axle Rods
4—1″ Axle Rods
1—6½″ Crank
2—¾″ Pinions
1—1½″ Gear
6—1″ Pulleys
8—Flanged Wheels
10—Collars
84—Angle Brackets
290—Nuts and Screws

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

THE MONORAIL
Fig. No. 150





The Monorail represents the famous suspended railway now operated at Elbergeld, Germany. The cars being suspended on a single overhead rail with station platforms at regular intervals.

The construction is comparatively simple and the two end frames should be made first of three 12½" Angle Girders braced at the upper corners with two 2½" Strips. The center frame should then be made of two 12½" Angle Girders and fastened at the top with two 12½" Strips, one on top of the other. This is done to stiffen the cross section, as the track must be supported by these strips.

Then fasten these frames together by four 12½" Strips on each side bolted to the Angle Girders in the 11th hole from the bottom. The four 12½" Strips at the bottom should then be fastened, using a 5½" Strip in the center so as to allow the end Strips to extend far enough to form a brace for the 2½" diagonal Strips.

The track should then be constructed of eight 12½" Angle Girders (A and B), fastened together by three 5½" Strips, one in the center and one at each end. The track should then be put into position and held in place by six 2½" upright Strips bolted to the 5½" cross Strips (G and H) by means of Angle Brackets. These 2½" Strips should be set five holes apart so as not to interfere with the cars as they pass back and forth.

Next fasten the Pulleys into position. Those at the left-hand side are mounted on 3½" Axles and fastened through the Angle Girders and held in place by four Collars. The Pulleys (E and F) are held in position by two Hanger Strips bolted fast to the Angle Girders at the top and to the side of the track at the bottom. The Pulleys (C and D), fastened above the gear housing, are held in position by two Hanger Strips bolted to the 12½" Angle Girder and held apart by a 5½" Strip fastened across the top. These two Pulleys are used as guides for the string, as it is wound on the Axles.

The Gearing is clearly shown in the small cut. The 1½" Gear being mounted on the 6½" Crank and meshes with the two ¾" Pinions. You will note that these Axles travel in opposite directions when the Crank is turned.

When fastening the string, the cars should be placed in the center of the track under the center frame. One end of the string should be fastened to the end of the car and passed around the horizontal Pulleys on the left side of the structure and the other end fastened to the opposite car. Then attach a separate string to the front end of the car, passing same over Pulleys (E and F), and fasten the other ends to the two Axles in the gear housing.

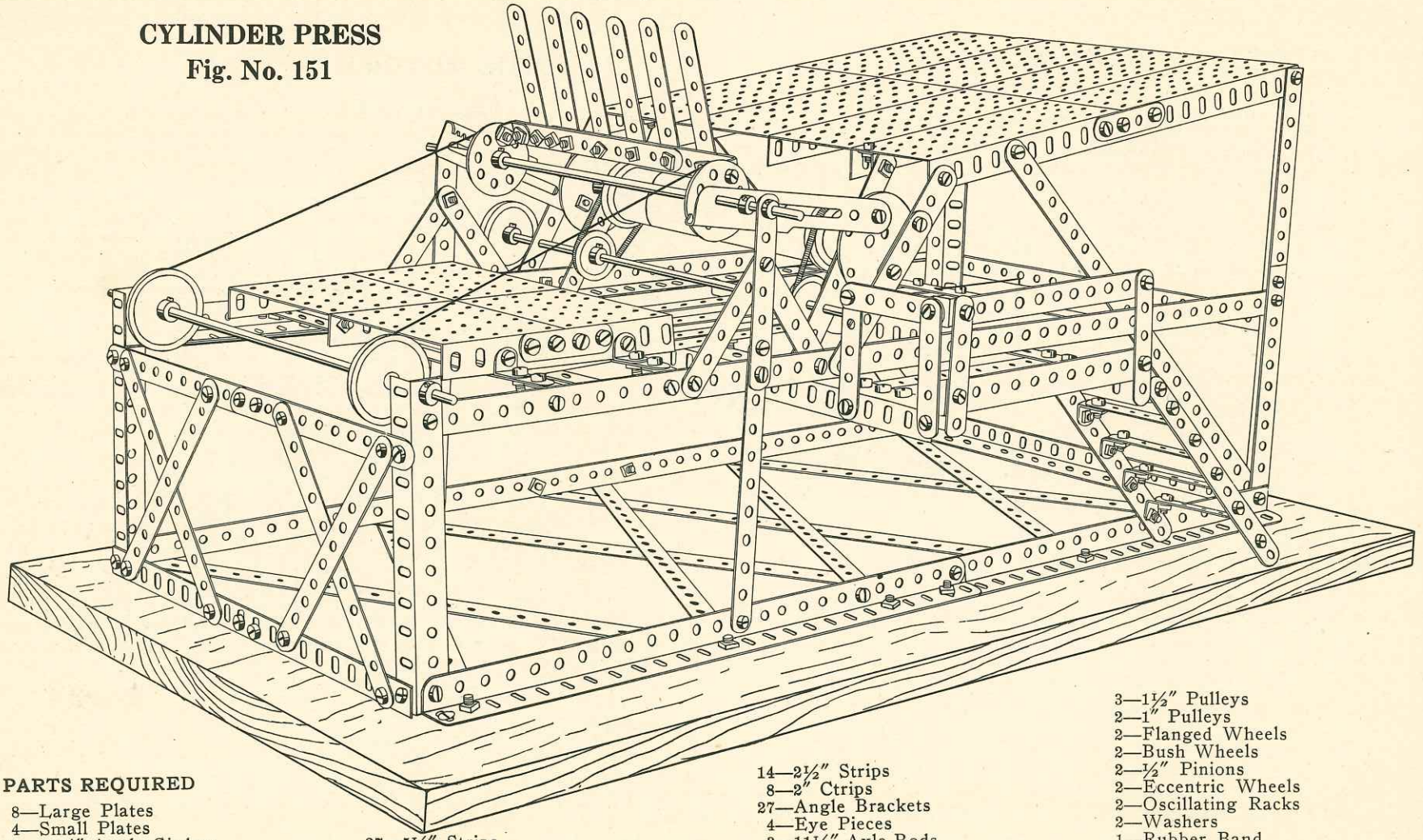
The platforms can easily be made and attached, as shown in the large cut.

This makes a beautiful Model when completed and operates perfectly. Should it be desired to operate by Motor, a Countershaft should be used to reduce the speed of the Motor and belted to an 1½" Pulley attached to the 6½" Crank.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

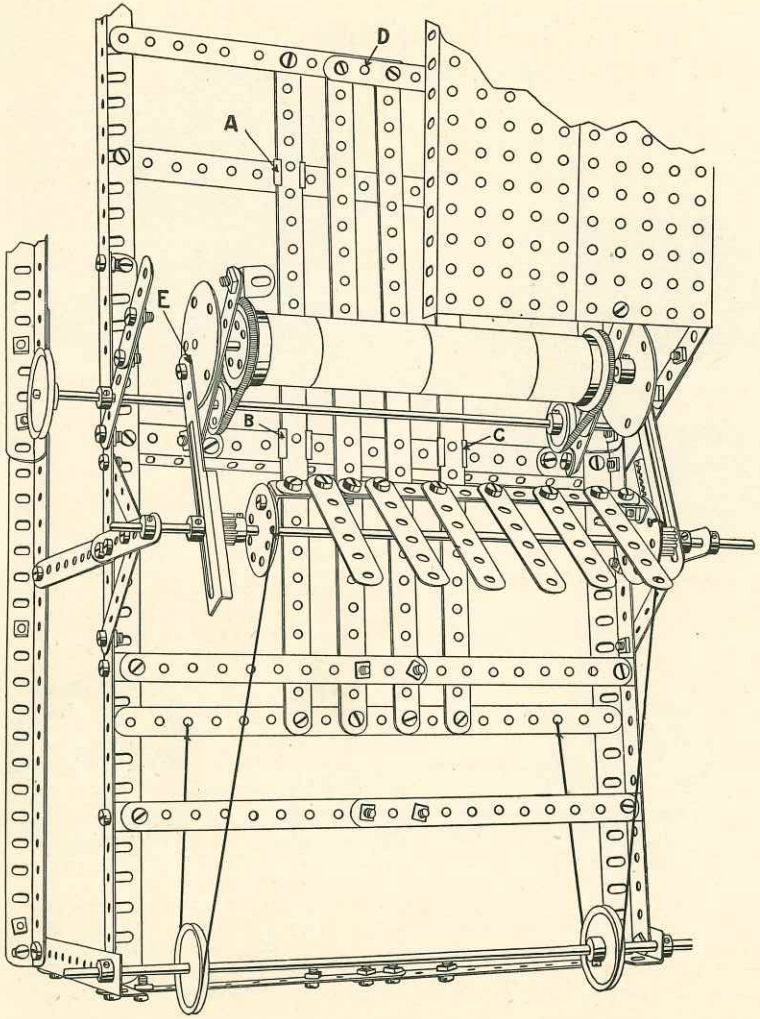
CYLINDER PRESS
Fig. No. 151



PARTS REQUIRED

8—Large Plates
4—Small Plates
10—12½" Angle Girders
11—5½" Angle Girders
10—12½" Strips
27—5½" Strips
6—3½" Strips
10—3" Strips
14—2½" Strips
8—2" Ctrips
27—Angle Brackets
4—Eye Pieces
3—11½" Axle Rods
1—8" Axle Rod
8—Collars
3—1½" Pulleys
2—1" Pulleys
2—Flanged Wheels
2—Bush Wheels
2—½" Pinions
2—Eccentric Wheels
2—Oscillating Racks
2—Washers
1—Rubber Band
2—Pulley Belts
206—Nuts and Screws

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.



CYLINDER PRESS

This Model of the Cylinder Press is the most perfect working Model shown in the Manual and has every appearance and all the movements of a Cylinder Press such as is used in every print shop. When operated, the cylinder revolves, the fly moves back and forth carrying the printed sheets to the table, and the plate bed moves back and forth. All three of these motions are simultaneous when the driving shaft is turned.

The Base frame should be made first of four 12½" Angle Girders bolted together and braced by the 12½" diagonal Strips as shown in the large cut. Then attach two upright 5½" Angle Girders in the front and two 5½" Angle Girders bolted together in the rear. To these should be fastened the eight Large Plates all bolted together with 2" Strips which forms the feed table. This table is fastened in front to the main frame by a diagonal brace on each side made of a 3½" and 2½" Strip bolted together. A 12½" diagonal Strip should then be bolted on each side.

Two 12½" Angle Girders should then be bolted on the under side of the frame and allowed to extend over the side to form the support for the feeder's platform.

Next attach the diagonal Strip which carries the Cylinder. This is made by bolting a 3½" and 2½" Strip together, then fasten the lower end to the 12½" Angle Girder and bolt the upper end in the fourth hole of the large plate as shown in the sectional cut. An 8" Axle should then be passed through the fourth hole from the top of this diagonal Strip to which should be attached two Flanged Wheels and on the outside two Eccentric Drive Wheels. The Cylinder is made of stiff paper rolled and placed in the flanges of the wheels with three small rubber bands to hold it together, as shown in the sectional cut. In the third hole below the 8" Axle should be inserted a 11½" Axle, which forms the Driving Shaft and carries two 1" Pulleys which should be belted to the Flanged Wheels forming the cylinder. At the extreme left end of this 11½" Axle should be mounted an 1½" Pulley, to which the Motor should be belted. This 11½" Axle Rod supplies the power for the operation of the entire Model, and care should be taken to see that all Set Screws are securely fastened.

Next construct the fly, which is made of two Bush Wheels attached to a 11½" Axle which is passed through the side supports as shown in the large cut. On the outside of the Bush Wheels should be mounted two ½" Pinions with the Collars turned in and these mesh with the two Oscillating Racks attached to the Eccentric Drive Wheels. (See sectional cut.) Note one of these Oscillating Racks has the teeth turned up while the other has the teeth turned down. These Racks should be bolted in the second hole nearest the center of the Eccentric Drive Wheel so as to give the proper throw to the fly.

The fly is made of five 3" Strips bolted to a 5½" Strip and fastened to the Bush Wheels by means of Angle Brackets.

The Plate bed should then be made of four 12½" Strips, the outside Strips passing through four Eye Pieces (A, B and C) bolted to the Angle Girders. These Strips should then be bolted to two 5½" Strips fastened together. This Plate bed slides back and forth as the press operates. The front end of this bed is fastened by cord which passes over the two 1½" Pulleys mounted at the front of the Press and fastened to the Bush Wheels. An ordinary rubber band is fastened at the rear end of this bed at (D) and then fastened to the Cross Strip at the rear of the press (see large cut). This Rubber Band pulls the bed back when the fly moves forward.

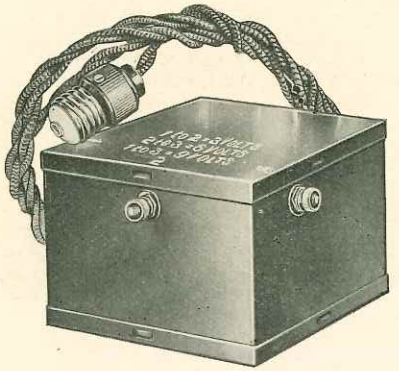
This Model should be operated by a Motor belted to a Countershaft so as to reduce the speed. The Countershaft should then be belted to the 1½" Pulley attached to the outside of the 11½" Axle which is mounted under the Cylinder.

While this is a very complicated Model, the action of the press is most beautiful and perfect, and shows every movement of a real printing press. The original of this Model was made and designed by a boy 16 years old and it required three weeks to perfect it. It is by far the most interesting cut shown in the Manual, and any boy can feel proud of his accomplishment after having built a duplicate of it.

The Model shown on this page can be made with The American Model Builder Outfit No. 7, or with No. 6 and No. 6½ Combined.

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

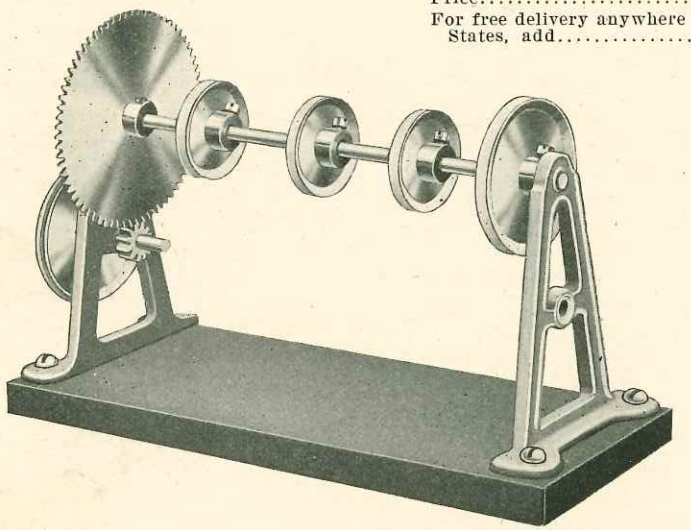
TRANSFORMER
Style No. 400



No. 400 Transformer

The majority of electrical toys and small motors do not require over nine volts to operate. We have designed this Transformer for just this class of toys, and it will entirely displace the use of storage batteries and dry cells. It will reduce any ALTERNATING city current from 110 to 125 volts to either 3, 6 or 9 volts, as desired. It is equipped with three binding posts and is 4¼ inches long, 3¾ inches wide and 3 inches high. It weighs 5 pounds. This Transformer is 40 watts capacity and will carry a 50% overload. A plug and 8 feet of flexible cord is included for attachment to any lamp socket. IT IS DESIGNED FOR USE ONLY WITH ALTERNATING CURRENT. Complete instructions for operating and showing combinations for securing desired voltages are supplied.

Price..... **$3.50**
For free delivery anywhere in United States, add..... **.50**



No. 350 Geared Countershaft

TRANSFORMER
Style No. 425

No. 425 Transformer

We have found that many owners of The American Model Builder also possess electrical toys requiring in excess of nine volts for satisfactory operation. We have designed the No. 425 Transformer particularly to fill this demand. In operating heavy toys such as large Electric Trains, Merry-Go-Rounds, Machine Shops, etc., we particularly recommend this Transformer because our experience with dry cells has been that they are usually worn out when wanted, and with storage batteries that the glass is easily broken, spilling the acid contents and ruining carpets and floors. In appearance and construction it is a duplicate of the largest and highest priced transformers, it is 60-watt capacity, and it will not be injured by short circuits. It is supplied with **plug attachments** instead of binding posts and is mounted in a cast iron ventilated case. It is 3⅞ inches high, 5⅞ inches wide, 5¾ inches long, and weighs 8 pounds. A generous supply of lamp cord is included for connection to any 110-volt ALTERNATING current lamp socket. Complete instructions for operating and showing how to secure the combinations of 3, 6, 11, 14, 17 and 20 volts are included.

Price..... **$10.00**
For free delivery anywhere in United States, add..... **.50**

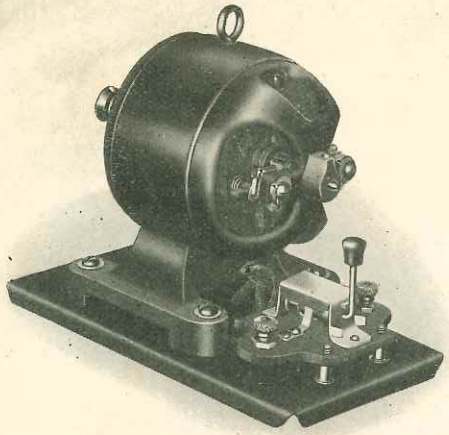
No. 350 GEARED COUNTERSHAFT

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED.

Our No. 350 Geared Countershaft will enable the owner of a small motor to operate two or more models at the same time.

We have designed our Countershaft especially for use with American Model Builder Models, but the same is entirely adaptable to other working models. The power of the Motor is increased nine times by means of the gearing which makes it possible to pull heavy loads without stalling the Motor. The shaft has cast iron sides. ⅛-inch axle, and is supplied with three 1-inch pulley wheels and one 1½-inch pulley wheel, all of which are adjustable on the shaft. It is mounted on a black enameled steel base.

Price, complete..... **$.50**
For free delivery anywhere in United States, add..... **.10**



No. 200 and 300 Motor

MOTOR Style No. 200

HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED

This motor is especially designed to be used in connection with our Geared Countershaft in operating our Models by electricity. The Motor can be run from two dry cells or from city current through our No. 400 or 425 Transformer. It is made of solid cast steel mounted on a steel base. The starting box enables the operator to start, stop or reverse the Motor at will without disconnecting the wires. It stands 3¾ inches high, is equipped with form wound coils and with a three-pole armature 1⅜ inches in diameter. It will run smoothly and wear indefinitely with just an occasional oiling.

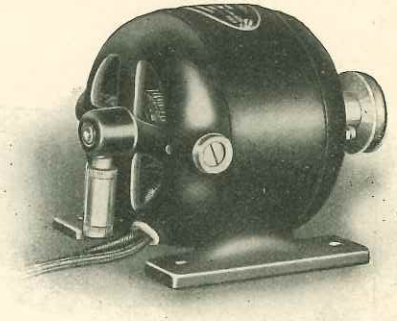
Price, complete.....**$2.25**
For free delivery anywhere in U. S. A., add.....**.25**

MOTOR Style No. 300

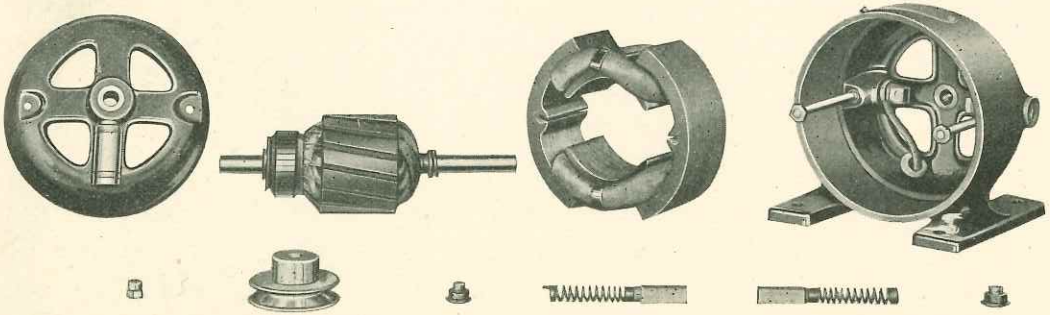
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED

Our No. 300 Motor is an exact duplicate of our No. 200 Motor in appearance. It stands 4½ inches high, but is equipped with a six-pole armature instead of a three-pole as in our No. 200 Motor. It is slightly larger, more efficient and powerful and will run smoothly and wear indefinitely with just an occasioonal oiling.

Price, complete.....**$2.75**
For free delivery anywhere in U. S. A., add.....**.25**



No. 325 Motor



Sectional View of Parts Used in the Construction of the No. 325 Universal Motor.

UNIVERSAL MOTOR Style No. 325

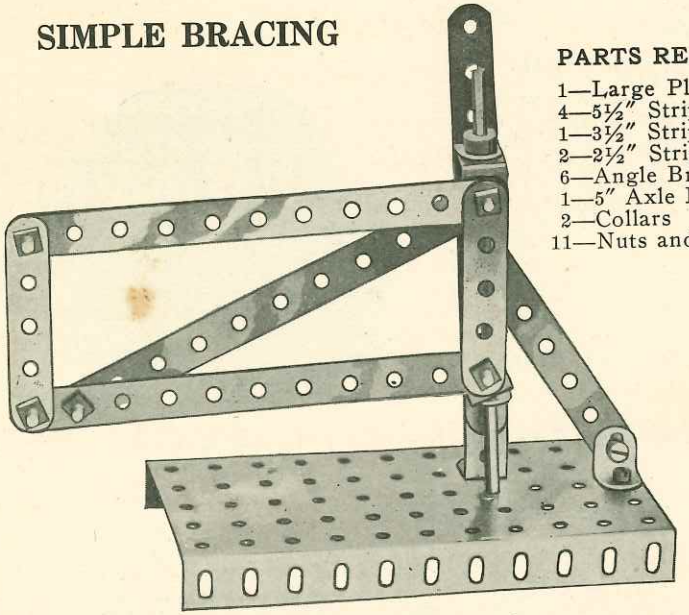
HALF THE FUN IS BUILDING THE MODELS—THE OTHER HALF IS OPERATING THEM WHEN COMPLETED

Owners of American Model Builders will be particularly interested in our Universal Motor which develops 1/100 H. P. It is designed for operation from either 110 volts DIRECT or ALTERNATING current. Dry cells, storage batteries or a transformer are entirely unnecessary. We strongly recommend this Universal Motor and offer it particularly to meet the ever-increasing demand for a very high grade motor. It is strong, powerful, compact and efficient and embodies the very best materials and workmanship in its construction. It is built with the same degree of accuracy as a 100 H. P. Motor, is 3¾ inches high, 3⅝ inches in diameter, 4½ inches shaft measurement and weighs 5 pounds. It is complete ready for attachment to any lamp socket. Especial care has been taken to make this Motor withstand every hard usage. It is provided with two large grease cups, on the inside of which are inserted felt wicks which provide sufficient lubrication to the Motor at all times when in operation. It will make a fine Motor for the boy who has a workshop and wishes to run small pieces of machinery. We especially call your attention to the sectional view of the parts used in the construction of our No. 325 Universal Motor as they show clearly the extreme care used in its manufacture.

Price.....**$12.50**
For free delivery anywhere in the U. S., add.....**.35**

The Motors shown here are strictly high grade and should not be confused with the cheaply constructed Motors offered by some dealers.

SIMPLE BRACING



PARTS REQUIRED

1—Large Plate
4—5½" Strips
1—3½" Strip
2—2½" Strips
6—Angle Brackets
1—5" Axle Rod
2—Collars
11—Nuts and Screws

In this Model we demonstrate two principles, that of properly hinging a gate and the application of a diagonal brace to stiffen the structure.

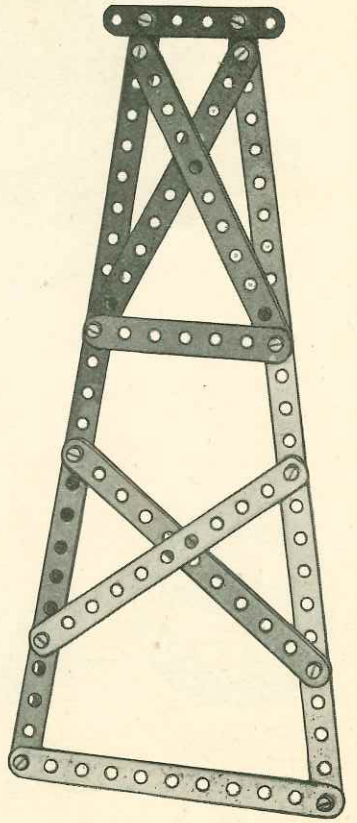
You will note in the cut that the lower hinge that is attached to the gate rests upon the lower hinge that is attached to the upright, while the upper hinge attached to the gate is underneath the hinge that is attached to the upright. By passing an Axle Rod through the four hinges, the gate is perfectly balanced and opens and closes freely. In ordinary practice, instead of these hinges being made of angle brackets as is shown in the cut, they are made of steel straps with one end turned up into a circle through which the axle passes.

In this Model we also demonstrate the principles of diagonal bracing. Before the diagonal strip is attached to the frame work, you will note that there is no rigidity, and that the frame work can be twisted in almost any shape. As soon as the diagonal strip is attached in the manner shown in the cut, the entire structure is stiffened and it is impossible to twist the frame work out of shape. This method of bracing also prevents the gate from sagging in the front as the strain is carried from the lower cross piece diagonally to the hinge.

TRESTLE BRACING

PARTS REQUIRED

2—12½" Strips
5—5½" Strips
1—3½" Strip
12—Nuts and Screws



This cut shows the ordinary way of building a trestle frame which is to carry heavy weight. In actual practice, there are two of these and they are fastened together with two diagonal Strips to keep the sides from separating.

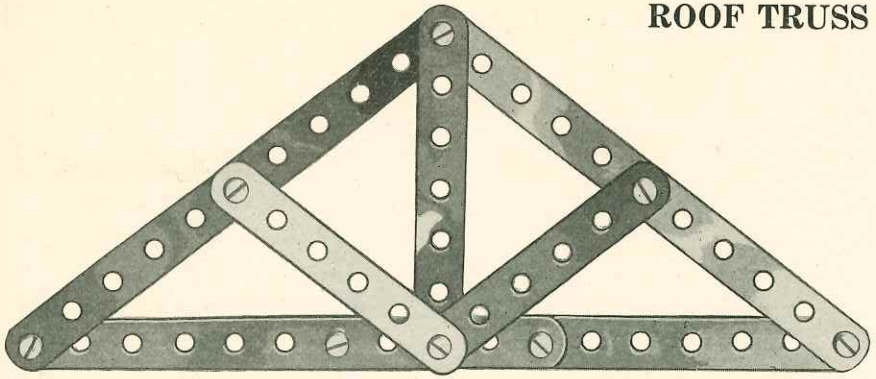
The track or road bed is laid across the top and the strain of the load is carried by the two 12½" Side Strips supported by the bracing afforded by the two upper 5½" Strips.

The 3½" Cross Strips strengthen the entire frame work and prevent the sides from giving in the center.

The two lower 5½" cross pieces stiffen the base of the frame work, while the bottom 5½" Strip prevents the Trestle from spreading when the load is carried.

While this construction is very simple, the different points should be carefully studied by the student. This kind of a trestle can be found in use on any railroad where a temporary elevation of their tracks is necessary and is only replaced by a permanent bridge.

ROOF TRUSS

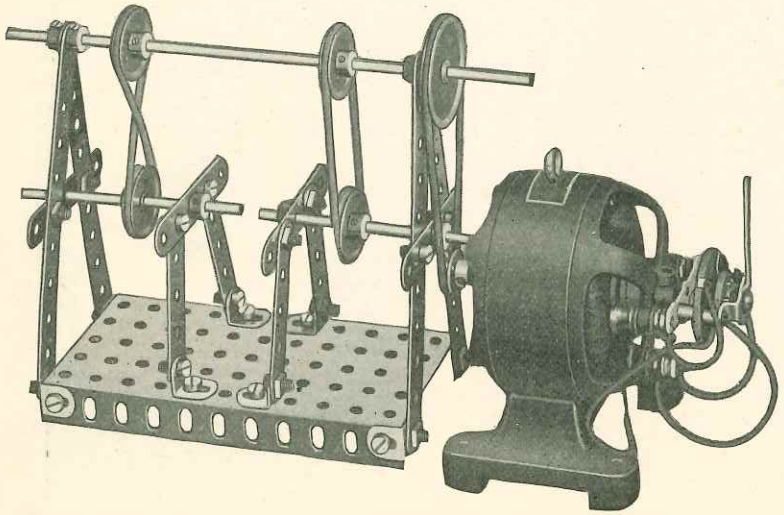


PARTS REQUIRED

4—5½″ Strips
1—3½″ Strip
2—3″ Strips
8—Nuts and Screws

In the accompanying cut, we show the ordinary construction that is used for supporting a wide Gable Roof. The lower girder is put in position first. Then the two diagonal Girders are supported and fastened at the top. The 3½″ Perpendicular Strip and the lower Girder are merely in tension while the thrust is taken by the two diagonal supports that are bolted to the lower Girder and fastened to the sloping sides. The greatest strain of the roof is carried by these pieces and in actual practice where the roof is of any considerable weight, these pieces are generally made of Angle Girders or I Beams. In order to give the student some idea of the strength in such a small part, two or three of these should be built in series and fastened together at the top and you will be surprised to see the enormous weight that they will carry.

STRAIGHT AND CROSSED BELT DRIVE



PARTS REQUIRED

1—Large Plate
4—5½″ Strips
8—2½″ Strips
1—8″ Axle Rod
2—3½″ Axle Rods
1—1½″ Pulley Wheel
4—1″ Pulley Wheels
7—Collars
8—Angle Brackets
24—Nuts and Screws

In this Model we demonstrate the principles of the Straight and Crossed Belt Drive. This practice is common in every machine shop where it is necessary to obtain a forward motion on some machines and a reversed motion on others.

The construction of this Model is very simple and needs no detailed description.

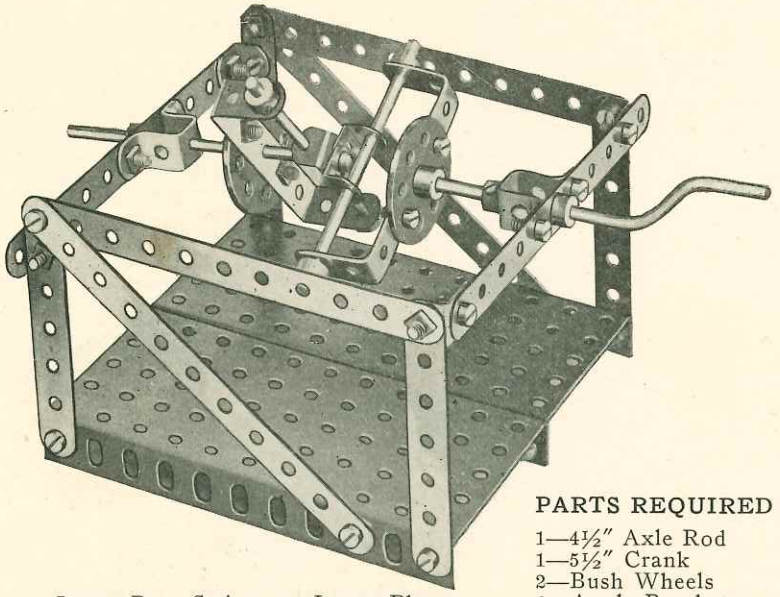
The belting of the motor to the Main Drive Shaft is accomplished by means of a Pulley Belt passing from the Pulley Wheel on the motor to the 1½″ Pulley Wheel on the shaft. The machines to be driven are represented by the lower shafts.

When this Model is set into operation, you will note that the left-hand lower shaft will revolve in a forward direction while the one on the right-hand side will revolve in the opposite direction.

In actual machine shop practice, a loose pulley is provided on every machine, so that the belt can be shifted to this, when it is desired to have any one machine inoperative without affecting any other machine belted to the same Driving Shaft. This means a saving of considerable power when machines are not in use.

The item of power is quite an item and in all modern machine shops ball-bearing driving shafts are used in order to eliminate as much friction as possible and thus increase the efficiency of the motor. The motor shown in this cut is not included in the regular outfit.

UNIVERSAL JOINT



2—Large Bent Strips
2—Double Bent Strips
2—3½″ Axle Rods
2—Large Plates
6—5½″ Strips
4—3½″ Strips

PARTS REQUIRED

1—4½″ Axle Rod
1—5½″ Crank
2—Bush Wheels
8—Angle Brackets
7—Collars
24—Nuts and Screws

This Model clearly demonstrates the Universal Joint which is used today on every Driving Shaft of an automobile. Its peculiar construction will admit of one shaft being perfectly straight while the other may be on an incline, as shown in the cut, and yet give a perfect rotating movement. This kind of a joint it used on automobiles in order to allow for the vibration of the Driving Shaft attached to the rear Axle when rough places in the road are encountered and to prevent this vibration being carried direct to the engine.

The construction is very simple, the outside frame work representing the frame work of an automobile. The joint itself is made of two Bush Wheels to which are bolted two Large Bent Strips. Through the end holes are inserted two 3½″ Axle Rods and in the center of these Axle Rods are attached two pairs of Angle Brackets bolted together, having the lips turned up in opposite directions.

In order to give a bearing to the Crank and Axle Rod, a Double Bent Strip is bolted on each end of the frame.

When operating the Crank at any speed, it should be noted that the back Axle can be raised or lowered without affecting the perfect working of the device.

BLOCK AND TACKLE

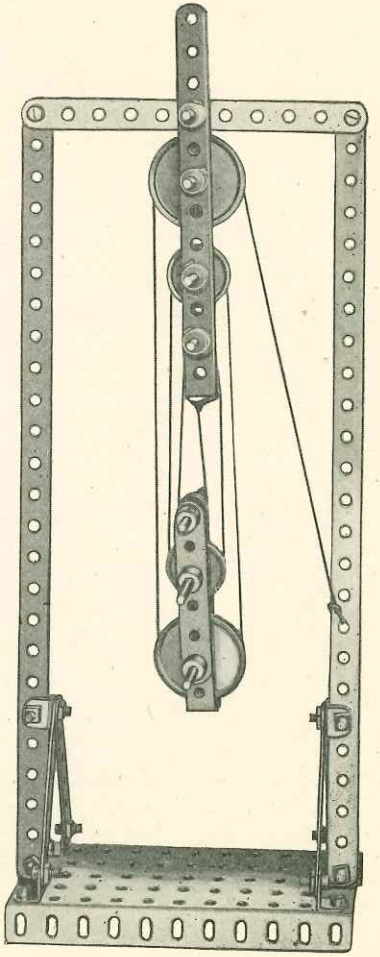
PARTS REQUIRED

1—Large Plate
2—12½″ Strips
3—5½″ Strips
6—3″ Strips
2—Single Bent Strips
2—½″ Pulley Wheels
2—1″ Pulley Wheels
2—1½″ Pulley Wheels
2—2″ Axle Rods
14—Collars
8—Angle Brackets
18—Nuts and Screws

This is an ingenious Model, and will give the student a thorough understanding of the application of the pulley system in a Block and Tackle apparatus.

The construction is very simple; three Pulley Wheels of graduated size being mounted between the strips and held in place by 2″ Axle Rods. The cord is then fastened to the Single Bent Strip on the upper frame and then passed over the ½″ Pulley Wheels, then over the 1″ Pulley Wheels, then over the 1½″ Pulley Wheels. For actual demonstration, a weight should be attached to the lower Single Bent Strip. It should be noted that in order to raise this weight one inch, it will be necessary to move the outside cord seven inches, thus multiplying the force applied on the outside cord by the number of times the cord is passed over the Pulley Wheels, which in this case would be seven times, eliminating friction. In other words, if a weight weighing one pound were attached to the end of the outside cord, it would balance a weight weighing seven pounds attached to the Single Bent Strip under the Pulleys.

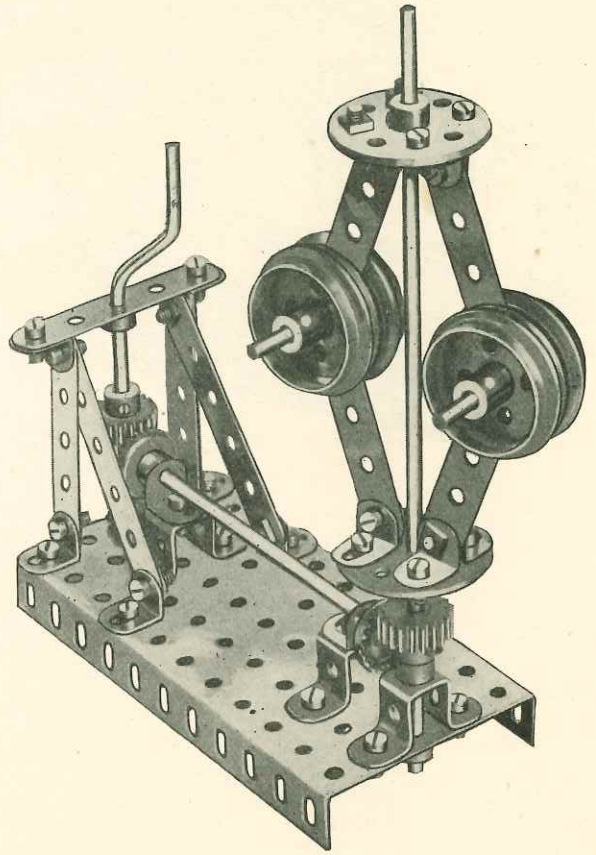
In actual practice, the upper Pulley Wheels would be mounted on the Axle Rod side by side, and the lower Pulleys on one Axle Rod side by side and the cord passed over them, as shown in the cut. This gives the same mechanical result, but the apparatus is more convenient and easier handled and is generally adopted. We simply show the Pulleys in the cut in a straight line in order to demonstrate the principle more clearly.



THE CENTRIFUGAL GOVERNOR

PARTS REQUIRED

1—Large Plate
2—3″ Strips
7—2½″ Strips
3—Double Bent Strips
2—Bush Wheels
4—Flanged Wheels
2—¾″ Crown Gears
2—¾″ Pinions
1—8″ Axle Rod
1—4½″ Axle Rod
2—2″ Axle Rods
1—4½″ Crank
4—Collars
16—Angle Brackets
32—Nuts and Screws



This type of Governor can be found on every steam engine and its function is to regulate the amount of steam that is admitted to the cylinders.

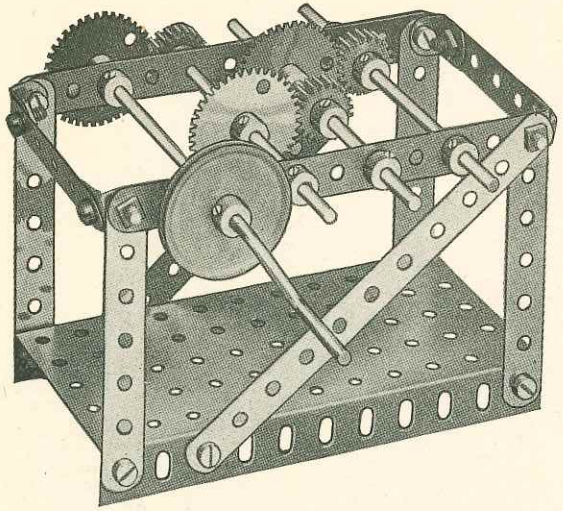
In constructing this Model, begin by belting two Angle Brackets to two Bush Wheels and bolt to these a 2½″ Strip. These strips should then be fastened together at the ends by inserting a 2″ Axle Rod through the end holes and fastening a Flanged Wheel on either side.

Next mount a Double Bent Strip on a Large Rectangular Plate and insert an 8″ Axle Rod through the Bush Wheels, fastening a ¾″ Pinion Wheel at the lower end of the Axle Rod before it is passed through the Double Bent Strip. The upper Bush Wheel should be fastened to the Axle Rod with the Set Screw, but the lower Bush Wheel should be left loose.

The Gearing is very simple, being accomplished by mounting two ¾″ Crown Gears on a 4½″ Axle Rod, and these are made to mesh with the ¾″ Pinion Wheel on the 8″ Axle Rod and the ¾″ Pinion Wheel on the Crank.

This mechanism derives its name from its action. When the crank is turned at a considerable speed, you will notice that the centrifugal force of the Flanged Wheels will cause the lower Bush Wheel to rise on the Axle Rod. The greater the speed, the higher it will rise. When this action takes place on an engine, this rise and fall operates on the valve admitting the steam to the cylinders and thus regulates the speed of the engine.

This is a highly interesting and scientific Model and should be closely studied as it will give the student a perfect understanding of the control of a high-powered steam engine.



GEAR TRAIN

This is a very instructive Model and clearly demonstrates the principles of gearing as applied in practical mechanics, showing how the number of revolutions of any shaft may be increased by a series of gears. This model can either be operated by hand or by motor. If it is operated by motor, four Angle Brackets should be attached to the corners of the Large Plate and bolted fast to a board or table, and the motor should be belted directly to the 1½" Pulley Wheel mounted on the Crank Shaft.

In making this Model, mount an 1½" Gear Wheel on the end of the Crank and have this Gear Wheel mesh with the ¾" Pinion mounted on the first Axle Rod. In the center of this same Axle Rod, mount an 1½" Gear Wheel which should mesh with the ¾" Pinion on the second Axle Rod. On the second Axle Rod also mount an 1½" Gear Wheel which should mesh with the ¾" Pinion on third Axle Rod.

By turning the Crank slowly, you will notice that the Crank and the second Axle Rod will revolve in a forward direction, while the first and third Axle Rods will revolve in a reverse direction. You will also note that the first Axle Rod travels faster than the Crank itself. The second Axle Rod travels still faster, and the third Axle Rod makes more revolutions than any of the rest.

In order to determine the number of revolutions that are made by any of these Axle Rods, it is necessary to count the number of teeth in the large 1½" Gear Wheels that are mounted on them, and multiply these together. Then count the number of teeth in the small Pinion Wheels that mesh with these Gear Wheels, and multiply these together; then divide the product secured by multiplying the number of teeth in the large Gear Wheels by the product secured by multiplying the number of teeth in the Pinion Wheels, which will give you the number of revolutions that the Axle Rod makes to one revolution of the Crank Shaft.

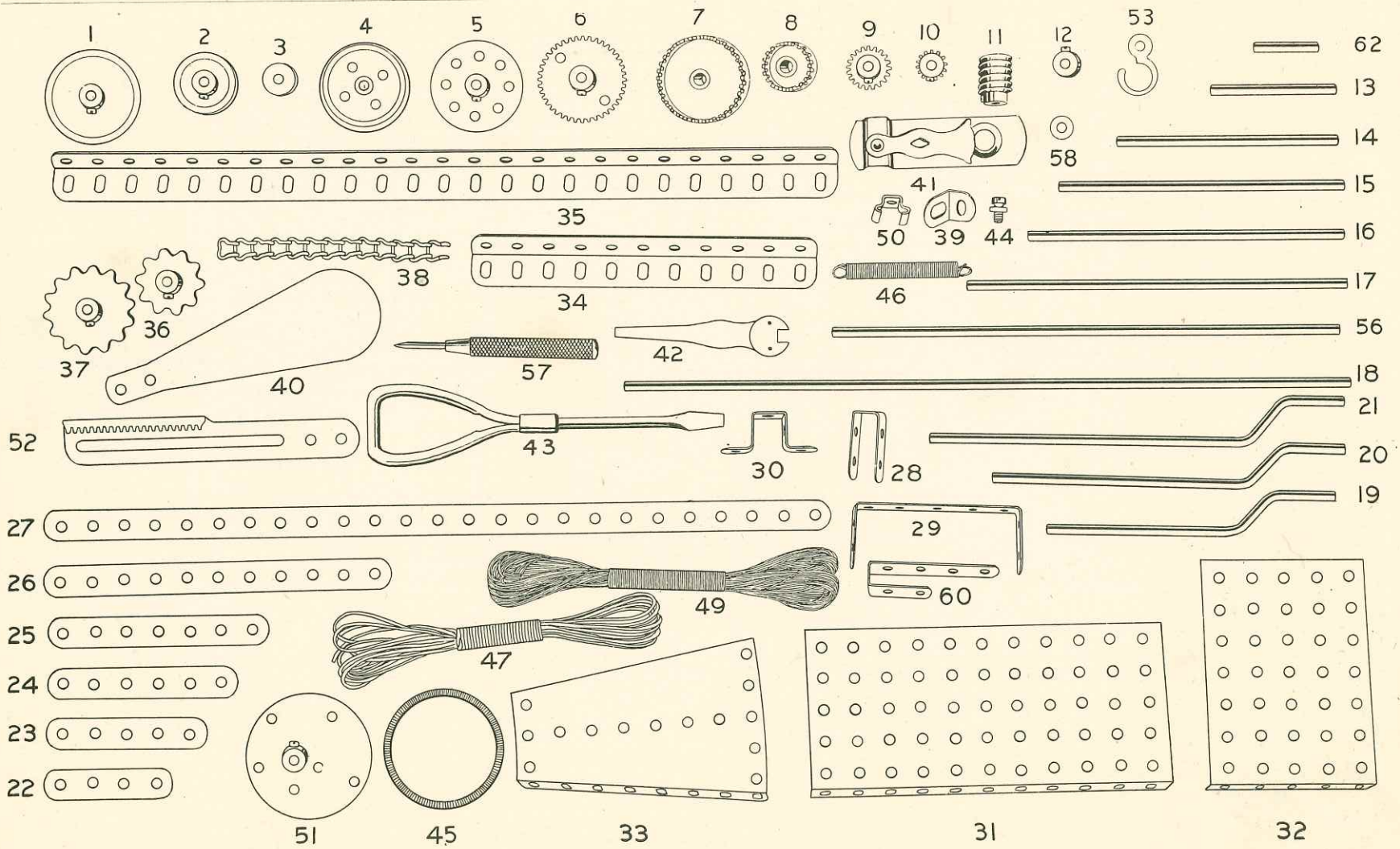
For instance, if you wish to determine the number of revolutions that are made by the third Axle Rod, count the number of teeth in the large Gear Wheel, which is forty, then multiply this sum by forty, representing the teeth in the Gear Wheel on the first Axle Rod, and this product by forty, representing the number of teeth in the Gear Wheel on the second Axle Rod, which should give you 64,000. Then multiply the number of teeth on the small Pinion Wheel mounted on the first Axle Rod, which is twenty, by the number of teeth in the small Pinion Wheel on the second Axle Rod, and this product by twenty, the number of teeth in the Pinion Wheel mounted on the third Axle Rod. This product will be found to be 8,000; then divide 8,000 into 64,000, which will give you 8, showing that the third Axle Rod makes eight revolutions to one of the Crank Shaft. If the motor that is belted to the Crank Shaft travels at a rate of 300 revolutions per minute, the third Axle Rod would travel eight times this number, or 2,4000 revolutions per minute.

PARTS REQUIRED

1—Large Plate
4—5½" Strips
4—3½" Strips
2—2½" Strips
4—Angle Brackets
3—4½" Axle Rods
1—5½" Crank
3—1½" Gear Wheels
3—¾" Pinions
1—1½" Pulley Wheel
7—Collars
14—Nuts and Screws

LIST OF CONTENTS

	0	0½	1	1½	2	2½	3	3½	4	4½	5	5½	6	6½	7
Flanged and Grooved Wheel	.....	.....	.....	.....	.....	... 4	4	.....	4	4	8	.....	8	.....	8
Pulley Wheels, 1½"	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	1	3	1	4
Pulley Wheels, 1"	4	.....	4	2	6	.....	6	2	6	.....	6	.....	6	.....	6
Pulley Wheels, ½"	.....	1	1	.....	1	...	1	1	2	1	3	4	7	1	8
Bush Wheel	.....	1	1	.....	1	.....	1	.....	1	1	2	.....	2	3	5
Pinion Wheel, ¾"	.....	.....	.....	.....	.....	.....	.....	2	2	.....	2	1	3	.....	3
Pinion Wheel, ½"	.....	.....	.....	.....	.....	1	1	1	2	.....	2	1	3	1	4
Gear Wheel, 1½"	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	1	2	2	4
Crown Gear, 1½"	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	.....	2	1	3
Crown Gear, ¾"	.....	.....	.....	.....	.....	.....	.....	2	2	.....	2	.....	2	.....	2
Worm Wheel	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	1	1	2
Collar and Set Screw	.....	4	4	2	6	2	8	2	10	2	12	4	16	4	20
Perforated Strip, 12½"	.....	2	2	4	6	6	12	.....	12	4	16	4	20	36	56
Perforated Strip, 5½"	4	.....	4	2	6	12	18	2	20	4	24	6	30	36	66
Perforated Strip, 3½"	.....	2	2	.....	2	1	3	3	6	2	8	12	20	20	40
Perforated Strip, 3"	.....	.....	.....	.....	.....	.....	.....	2	2	2	4	4	8	16	24
Perforated Strip, 2½"	6	4	10	.....	10	10	20	.....	20	10	30	30	60	10	70
Perforated Strip, 2"	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	6	10	20	30
Angle Girder, 12½"	.....	.....	.....	.....	.....	4	4	4	8	.....	8	2	10	14	24
Angle Girder, 5½"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	12	16
Angle Bracket	6	6	12	.....	12	12	24	12	36	24	60	12	72	120	192
Single Bent Strip	.....	1	1	.....	1	...	1	1	2	.....	2	1	3	1	4
Double Bent Strip	.....	.....	.....	1	1	1	2	.....	2	.....	2	2	4	4	8
Large Bent Strip	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	2	4	.....	4
Hanger Strips	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2	4	.....	4
Knurled Screw Driver	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	1
Pawl	.....	.....	.....	.....	.....	1	1	1	2	.....	2	1	3	1	4
Spanner and Screw Driver	1	.....	1	.....	1	.....	1	.....	1	1	2	.....	2	.....	2
Screw Driver, Large	.....	.....	.....	.....	.....	1	1	.....	1	.....	1	.....	1	1	2
Hook	.....	.....	.....	1	1	.....	1	1	2	.....	2	.....	2	1	3
Rectangular Plate, Large	1	.....	1	.....	1	.....	1	1	2	.....	2	2	4	4	8
Rectangular Plate, Small	.....	.....	.....	1	1	.....	1	3	4	.....	4	2	6	4	10
Sector Plate	.....	1	1	1	2	.....	2	.....	2	.....	2	.....	2	2	4
Nuts	12	12	24	12	36	24	60	20	80	40	120	130	250	300	550
Machine Screws	12	12	24	12	36	24	60	20	80	40	120	130	250	300	550
Wood Screws	.....	.....	.....	4	4	.....	4	4	8	.....	8	4	12	12	24
Axle Rod, 11½"	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....	2	2	4
Axle Rod, 8"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2	4
Axle Rod, 6"	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2	4	.....	4
Axle Rod, 5"	.....	.....	.....	.....	.....	3	3	1	4	.....	4	.....	4	.....	4
Axle Rod, 4½"	2	.....	2	1	3	.....	3	1	4	2	6	.....	6	2	8
Axle Rod, 3½"	.....	.....	.....	1	1	1	2	.....	2	.....	2	2	4	2	6
Axle Rod, 2"	.....	2	2	.....	2	1	3	1	4	2	6	2	8	2	10
Axle Rod, 1"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	4	.....	4
Rule, 12"	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	.....	1
Cranks, 6½"	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	.....	2	2	4
Cranks, 5½"	.....	1	1	.....	1	1	2	.....	2	.....	2	1	3	1	4
Cranks, 4½"	1	.....	1	.....	1	.....	1	1	2	.....	2	.....	2	2	4
Spring	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1	1	2
Eye Pieces	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2	4	2	6
Oscillating Rack	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	.....	2	.....	2
Eccentric Drive Wheel	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	.....	2	.....	2
Chain, 4 ft. Length	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	2	3
Washers	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	.....	2	2	4
Sprocket, 1"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	2
Sprocket, 1½"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	2
Cord, Heavy Blue, Hank	.....	.....	.....	1	1	1	2	1	3	1	4	2	6	.....	6
Cord, Green, 40 ft. Lengths	.....	1	1	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cord, Green, 80 ft. Lengths	.....	.....	.....	.....	.....	.....	1	.....	1	.....	1	1	2	1	3
Propeller Blades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	2	4
Pulley Belt	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	1	1	2	2	4
Instruction Book	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manual of Instruction	.....	.....	.....	1	1	.....	1	.....	1	.....	1	.....	1	1	2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PRICE LIST OF SEPARATE PARTS

No. 1.	1½″	Pulley Wheels	at 10c	Each
No. 2.	1″	" "	" 10c	"
No. 3.	½″	" "	" 05c	"
No. 4.	1½″	Flanged Wheels	" 20c	"
No. 5.	1½″	Bush Wheels	" 15c	"
No. 6.	1½″	Gear Wheels	" 25c	"
No. 7.	1½″	Crown Gears	" 30c	"
No. 8.	¾″	" "	" 25c	"
No. 9.	¾″	Pinions	" 20c	"
No. 10.	½″	"	" 15c	"
No. 11.		Worm Wheels	" 20c	"
No. 12.		Collars and Set Screws	" 05c	"
No. 13.	2″	Axle Rods	" 2½c	"
No. 14.	3½″	" "	" 2½c	"
No. 15.	4½″	" "	" 05c	"
No. 16.	5″	" "	" 05c	"
No. 17.	6″	" "	" 05c	"
No. 18.	11½″	" "	" 10c	"
No. 19.	4½″	Cranks	" 10c	"
No. 20.	5½″	"	" 10c	"
No. 21.	6½″	"	" 10c	"
No. 22.	2″	Perforated Strips	" 10c	½ Doz.
No. 23.	2½″	" "	" 10c	½ "
No. 24.	3″	" "	" 10c	½ "
No. 25.	3½″	" "	" 10c	½ "
No. 26.	5½″	" "	" 15c	½ "
No. 27.	12½″	" "	" 25c	½ "
No. 28.		Single Bent Strips	" 05c	Each
No. 29.		Large Bent Strips	" 05c	"
No. 30.		Double Bent Strips	" 05c	"
No. 31.		Large Rectangular Plates	" 15c	"
No. 32.		Small Rectangular Plates	at 10c	Each
No. 33.		Sector Plates	" 10c	"
No. 34.	5½″	Angle Girders	" 20c	½ Doz.
No. 35.	12½″	" "	" 30c	½ "
No. 36.	1″	Sprocket	" 20c	Each
No. 37.	1½″	"	" 20c	"
No. 38.		Chain 4 ft. Length	" 20c	"
No. 39.		Angle Brackets	" 10c	Doz.
No. 40.		Propeller Blades	" 15c	Pair
No. 41.		Pawls	" 10c	Each
No. 42.		Spanner and Screw Driver	" 10c	"
No. 43.		Large Screw Driver	" 10c	"
No. 44.		Nuts and Bolts	" 10c	Doz.
No. 45.		Pulley Belts	" 05c	Each
No. 46.	1¾″	Springs	" 05c	"
No. 47.		Blue Cord 15 ft.	" 2½c	"
No. 49.		Green Cord 80 ft.	" 05c	"
No. 50.		Eye Pieces	" 05c	"
No. 51.		Eccentric Wheels	" 15c	"
No. 52.		Oscillating Rack	" 15c	"
No. 53.		Hooks	" 05c	"
No. 54.		Instruction Book No. 1	" 05c	"
No. 55.		Complete Manual of Instruction	" 15c	"
No. 56.	8″	Axle Rods	" 10c	"
No. 57.		Knurled Screw Driver	" 15c	"
No. 58.		Washers	" 05c	½ Doz.
No. 59.		Set Screws	" 05c	½ "
No. 60.		Hanger Strips	" 05c	Each
No. 61.	½″	Wood Screws	" 05c	½ Doz.
No. 62.	1″	Axle Rods	" 2½c	Each

Any of these parts can be secured from dealers handling AMERICAN MODEL BUILDER Outfits at the above prices.
When separate parts are ordered DIRECT FROM THE FACTORY, 10% must be added to the above prices to cover postage.
When orders for separate parts amount to $3.00 or more, we will prepay transportation charges anywhere in the United States.

THE AMERICAN MECHANICAL TOY CO., Dayton, Ohio, U. S. A.

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No. 3	American Model Builder Outfit	" " 50 "	3.00
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No. 5	American Model Builder Outfit	" " 71 "	7.50
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NOTE.—Any Regular Outfit can be converted into the next larger Outfit by the addition of the Accessory Outfit bearing the half size. For example, a No. 1½ Outfit added to a No. 1 will convert a No. 1 into a No. 2; a No. 2½ will convert a No. 2 into a No. 3, and so on.

Any of the above Outfits can be secured from your dealer at prices shown. Where Outfits are ordered direct from the factory, the following amounts must be added to cover packing, insurance and free delivery: REGULAR OUTFITS—No. 0, 10c; No. 1, 15c; No. 2, 25c; No. 3, 35c; No. 4, 35c; No. 5, 50c; No. 6, 75c; No. 7, $1.00. ACCESSORY OUTFITS—No. 0½, 10c; No. 1½, 15c; No. 2½, 25c; No. 3½, 25c; No. 4½, 25c; No. 5½, 35c; No. 6½, 75c.

If your remittance does not include the amounts specified for free delivery, shipment will be made Express Collect.

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